

0001



State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt  
Governor

Ted Stewart  
Executive Director

Lowell P. Braxton  
Division Director

1594 West North Temple, Suite 1210

PO Box 145801

Salt Lake City, Utah 84114-5801

801-538-5340

801-359-3940 (Fax)

801-538-7223 (TDD)

February 13, 1998

Wendell Owen  
Co-Op Mining Company  
P.O. Box 1245  
Price, Utah 84528

Re: State Permit for Mining in the Tank Seam in Federal Lease U-024316, Co-Op Mining Company,  
Bear Canyon Mine, ACT/015/025, Folder #3, Emery County, Utah

*Wendell*  
Dear Mr. Owen:

Enclosed is the revised state permit that includes mining in the Tank Seam in Federal Lease U-024316. This permit has two conditions: 1) "Drainage or pumping of in-mine water to the old mine working north of the big Bear and Birch Spring will be controlled and monitored as stipulated by the Division with revision of that procedure only as directed by the Division and with the prior approval of the Division" and 2) "Mining in the Tank Seam in federal lease U-024316 may only commence after federal mining plan approval for this permitting action has been obtained."

Please sign both permits and return one to the Division. Additionally, please submit seven finalized copies of the approved changes to the plan. If you have any questions, please call me.

Sincerely,

A handwritten signature in cursive script, appearing to read 'Lowell'.

Lowell P. Braxton  
Acting Director

tat  
Enclosure

cc: Ranvir Singh, OSM-WRCC  
Emery County Planning  
Jeffrey Appel, Appel and Warlamount  
Craig Smith, Nielson and Senior  
Price Field Office

O:\015025.BC\FINAL\PERMIT\TANKLTR.WPD

UTAH DIVISION OF OIL, GAS, AND MINING  
STATE DECISION DOCUMENT

Co-Op Mining Company  
Bear Canyon Mine  
ACT/015/025  
Mining the Tank Seam  
Federal Lease U-024316  
Emery County, Utah

February 12, 1998

CONTENTS

- \* Administrative Overview
- \* Location Map
- \* Permitting Chronology
- \* Mine Plan Information
- \* Findings
- \* Permit
- \* Division Technical Analysis, January 8, 1998
- \* Environmental Assessment, dated August 6, 1987 (FONSI for Readjustment)
- \* Cumulative Hydrologic Impact Assessment, January 2, 1998
- \* Letters of Concurrence
  - Bureau of Land Management, R2P2 - February 10, 1998
  - U.S. Fish and Wildlife Services, January 16, 1998
  - Division of State History, January 20, 1998
  - Forest Service, Manti La Sal, February 10, 1998
  - Section 510 (c), Memo to File, February 2, 1998
  - Bureau of Land Management, Approved Assignment  
of Lease U-024316, effective August 21, 1980
- \* Water User's Objection and Request for Conference, July 3, 1997
- \* Division Response to Water User's Objections, July 25, 1997
- \* Determination of Completeness
- \* Affidavit or Publication
- \* Surety

## ADMINISTRATIVE OVERVIEW

Co-Op Mining Company  
Bear Canyon Mine  
Mining the Tank Seam  
Federal Lease U-024316  
ACT/015/018  
Emery County, Utah

February 12, 1998

### PROPOSAL

Co-Op Mining Company submitted an application to mine the Tank Seam in federal lease U-024316 by adding 320 acres to the existing permit area on March 28, 1997. This proposal for mining would be done as an extension of current underground room and pillar mining operations already approved under permit, ACT/015/025.

### BACKGROUND

The original permit for the Bear Canyon Mine was issued on November 1, 1985. This permit was renewed on May 20, 1991, accompanied by an Order directing Co-Op Mining Company to further characterize the relationship of mining and the hydrologic regime at the Bear Canyon Mine. Mining began in the Blind Canyon Seam.

In 1993, Co-Op Mining Company applied for a permit revision to allow mining of the Tank Seam (fee coal) at the Bear Canyon Mine, which seam is located topographically and geologically above the Blind Canyon seam. The Division approved this permitting action in June 1994. A group of local water users (Castle Valley Special Service District, North Emery Water Users Association and Huntington-Cleveland Irrigation Company, hereinafter called "Water Users") appealed the approved revision to the Board, which held a formal evidentiary hearing. The Water Users presented evidence and argued that mining of the Tank Seam would adversely affect the spring because the permit area and springs were within the same regional aquifer and were in hydrologic connection, and that Co-Op Mining Company's mining operation had intercepted the aquifer which supplied the springs. Co-Op Mining Company presented evidence to support its claim that mining the Tank seam would not adversely affect the springs because the permit area is hydrologically isolated from the aquifer feeding the springs.

On June 13, 1995, the Board affirmed the Division approval of the permit revision and rejected the Water User's arguments, finding that the mined areas were hydrologically separate from the Water Users' springs and that the mining was not adversely affecting the springs. The Water Users appealed to the Utah Supreme Court, which in a December 31, 1996 Opinion affirmed the Board's Order.

The permit was renewed on November 2, 1995 based on the fact that the Division did not find any evidence to deny the permit renewal. This Division decision was appealed to the Board. A hearing was held in January 1996 and on February 23, 1996, the Board reversed the Division's renewal of the permit, and remanded the Water Users' Objections to the Division to conduct the requested Informal Conference. Co-Op Mining Company was also granted administrative delay by the Board at that time to continue mining until the decision from the informal conference was made.

The informal conference was held by the Division Director on October 17, 1996, November 8, 1996 and February 28, 1997. All information was submitted to the Director and the decision to grant the permit renewal as a result of the informal conference was signed by the Director on August 11, 1997. The renewed permit was issued August 27, 1997, effective November 2, 1995.

This Division decision on the permit renewal has been appealed by the Water Users to the Board of Oil, Gas, and Mining and will be heard at the April 1998 Board hearing.

The Forest Service consent letter conditioned this permitting action on there being no escarpment failure. No escarpment failure should occur because the current plan allows only first mining (mains) under the escarpments in the federal lease area. (This information is found in the Bear Canyon Mine mining and reclamation plan, page 3-C9 and Plate 3-4C.)

An irrevocable letter of credit in the amount of \$525,000 payable to the Division and the Office of Surface Mining is currently posted for reclamation at the Bear Canyon Mine.

#### RECOMMENDATION

A Division review including the technical analysis and cumulative hydrologic impact analysis has determined that Co-Op Mining Company has demonstrated through their application that mining in the Tank Seam Addition can be done in conformance with the Surface Mining Control and Reclamation Act, the Utah Code Annotated 40-10 et seq, and Utah Administrative Code, R645 rules.

Administrative Overview  
Mining in the Tank Seam  
Federal Lease U-024316  
Page 3

All issues raised during the review process which are pertinent to this action, have been adequately addressed, resolved or have been attached as conditions to this permit approval. The Forest Service consented to this permitting action with the condition that the escarpment will not fail which is based on the assumption that there is only first mining under the escarpment.

Objections were received to this action but were denied through the administrative process by Lowell Braxton, then Deputy Director per letter dated July 25, 1997.

It is recommended that the proposal to mine in the Tank Seam in federal lease U-024316 be approved.

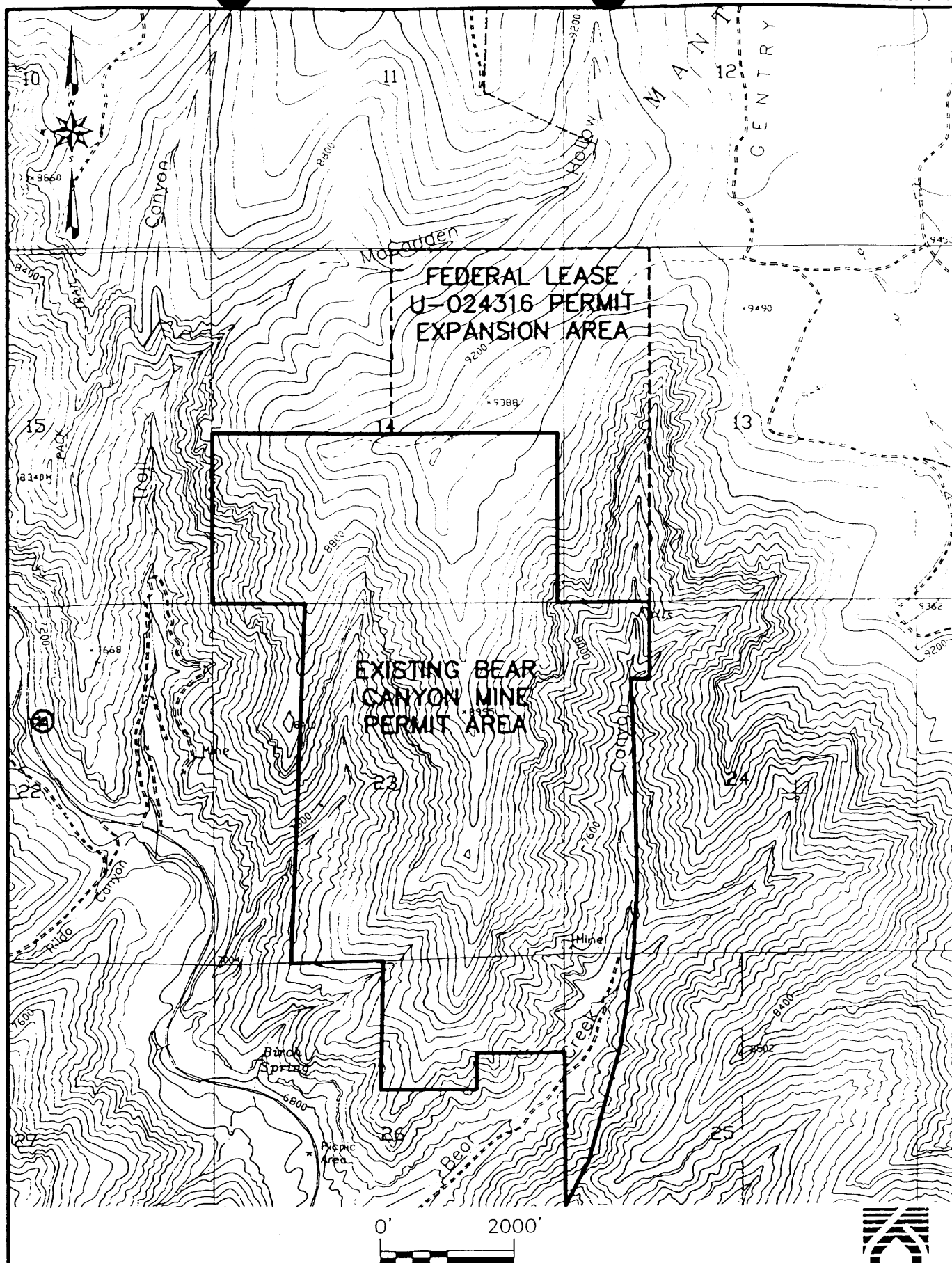


FIGURE 1-1. FEDERAL LEASE U-024316  
PERMIT EXPANSION AREA LOCATION MAP

## PERMITTING CHRONOLOGY

Co-Op Mining Company  
Bear Canyon Mine  
Mining the Tank Seam  
Federal Lease U-024316  
ACT/015/025  
Emery County, Utah

February 12, 1998

March 27, 1997	Co-Op Mining Company submits a permit application to mine in the Tank seam in federal lease U-024316
April 1, 1997	This permit application was transmitted to federal agencies and state agencies were notified.
May 2, 1997	Determination of Administrative Completeness.
May 6, 1997	Letters sent to federal, state and local governmental agencies.
May 13, 20, and 27 June 3, 1997	This permitting action published in <u>Emery County Progress</u> on May 13, 20, 27 and June 3, 1997.
June 6, 1997	Division Technical Analysis with deficiencies submitted to Co-Op Mining Company.
July 3, 1997	Water User's request an Informal Conference.
July 25, 1997	Division denied request for an Informal Conference based on the fact that no new issues of substance were raised which have not been previously heard and considered.
September 16, 1997 and December 8, 1997	Co-Op Mining Company responds to Division Technical Analysis.
February 12, 1998	State Decision Document for mining in the Tank Seam in federal lease U-024316 and forwarded to the Office Of Surface Mining Reclamation and Enforcement for concurrence and secretarial signature.

### MINE PLAN INFORMATION

Mine Name: Bear Canyon Mine State ID: ACT/015/025  
County: Emery New/Existing Mine: Existing  
Operator: Co-Op Mining Company Controlled By: Co-Op Mining Company

Contact Person(s): Wendell Owen/ Charles Reynolds  
Telephone: (435) 687-2450  
Position: Resident Agent/ Compliance Coordinator  
Mining Method(s): Room & Pillar  
Mine Life (years): 30  
Average Annual Production (tons): 60,000  
Percent Recovery: 50-80%  
Date on Which Annual Rate Will Be Attained: 1987  
Date on Which Production Will Begin: 1984  
Date on Which Production Will End: 2014  
Reserves Recoverable by Surface Mining (tons): 0  
Reserves Recoverable by Underground Mining (tons): 8,933,003  
Reserves Lost through Management Decisions (tons): 0  
Coal Market: Utility/ Domestic/ Export

Federal Lease No(s): U-024316  
Legal Description(s): Lease U-024316:  
T.16S, R.7E, SLBM  
Section 13: W $\frac{1}{2}$ W $\frac{1}{2}$   
Section 14: NE $\frac{1}{4}$ , E $\frac{1}{2}$ NW $\frac{1}{4}$

State Lease No(s): N/A  
Legal Description(s): \_\_\_\_\_  
\_\_\_\_\_

Other Leases (identify): Private Lease (See Section 2.2.2 of the approved MRP)

Description(s): T.16S, R.7E, SLBM  
Section 14: SW $\frac{1}{4}$ SE $\frac{1}{4}$   
Section 23: E $\frac{1}{2}$ , E $\frac{1}{2}$ W $\frac{1}{2}$   
Section 24: Everything west of Bear Canyon Fault.  
Section 25: Everything west of Bear Canyon Fault.  
Section 26: NE $\frac{1}{4}$ NE $\frac{1}{4}$ , NW $\frac{1}{4}$ NE $\frac{1}{4}$ , N $\frac{1}{2}$ SW $\frac{1}{4}$ ,  
access/haul road, topsoil storage area.



**Surface Ownership (acres)**

	<b><u>Existing Permit Area</u></b>	<b><u>Proposed Permit Area</u></b>	<b><u>Total Life of Mine Area</u></b>
Federal	<u>25</u>	<u>320</u>	<u>345</u>
State	<u>0</u>	<u>0</u>	<u>0</u>
Private	<u>1,032.75</u>	<u>0</u>	<u>1,032.75</u>
Other	<u>0</u>	<u>0</u>	<u>0</u>
TOTAL	<u>1,057.75</u>	<u>320</u>	<u>1,377.75</u>

**Coal Ownership (acres)**

	<b><u>Existing Permit Area</u></b>	<b><u>Proposed Permit Area</u></b>	<b><u>Total Life of Mine Area</u></b>
Federal	<u>53.54</u>	<u>320</u>	<u>373.54</u>
State	<u>0</u>	<u>0</u>	<u>0</u>
Private	<u>1,004.21</u>	<u>0</u>	<u>1,004.21</u>
Other	<u>0</u>	<u>0</u>	<u>0</u>
TOTAL	<u>1,057.75</u>	<u>320</u>	<u>1,377.75</u>

**Coal Resource Data (millions of tons)**

	<b><u>Total Reserves</u></b>	<b><u>Total Recoverable Reserves</u></b>
Federal	<u>.694</u>	<u>.347</u>
State	<u>0</u>	<u>0</u>
Private	<u>14.737</u>	<u>7.369</u>
Other	<u>0</u>	<u>0</u>
TOTAL (Life of Mine)	<u>15.431</u>	<u>7.716</u>

**Recoverable Reserve Data**

<b><u>Seam</u></b>	<b><u>Thickness (feet)</u></b>	<b><u>Map</u></b>	<b><u>Depth (feet)</u></b>
<u>Tank</u>	<u>0-8'</u>	<u>6-11</u>	<u>0-1600'</u>
<u>Blind Canyon</u>	<u>0-14'</u>	<u>6-3</u>	<u>0-1800'</u>
<u>Hiawatha</u>	<u>0-8'</u>	<u>6-7</u>	<u>0-1900'</u>

**Modifications That Have Been Approved**

<b><u>Date</u></b>	<b><u>Description</u></b>
<u>02/93</u>	<u>Bath House Addition</u>
<u>02/94</u>	<u>Tank Seam Addition</u>

## FINDINGS

Co-Op Mining Company  
Bear Canyon Mine  
Mining the Tank Seam  
Federal Lease U-024316  
ACT/015/025  
Emery County, Utah

February 12, 1998

1. The revised plan and the permit application to mine in the Tank seam in federal Lease U-024316 is accurate and complete and all requirements of the Surface Mining Control and Reclamation Act, and the approved Utah State Program (the "Act") have been complied with. Refer to January 8, 1998 Technical Analysis (R645-300-133.100)
2. No additional surface disturbance is associated with this permitting action. (R645-300-133.710)
3. An assessment of the probable cumulative impacts of all anticipated coal mining and reclamation activities in the general area on the hydrologic balance has been conducted by the Division and no significant impacts were identified. The Mining and Reclamation Plan (MRP) proposed under the revised application has been designed to prevent damage to the hydrologic balance in the permit area and in associated off-site areas. See CHIA updated for mining in the Tank Seam in federal lease U-024316, dated January 2, 1998. (R645-300-133.400 and UCA 40-10-11 (2)(c)).
4. The proposed lands to be included within the permit area are:
  - a. Not included within an area designated unsuitable for underground coal mining operation (R645-300-133.220);
  - b. not within an area under study for designated land unsuitable for underground coal mining operations (R645-300-133.210);
  - c. not on any lands subject to the prohibitions or limitation of 30 CFR 761.11 {a} (national parks, etc), 761.11{f} (public buildings, etc.) and 761.11 {g} (cemeteries);
  - d. within 100 feet of a public road (R645-300-133.220); and
  - e. not within 300 feet of any occupied dwelling (R645-300-133.220).

## Findings

### Mining in the Tank Seam

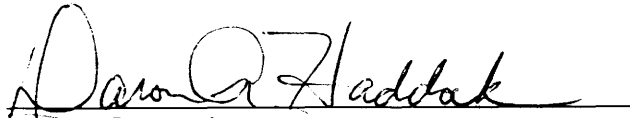
Federal Lease U-024316

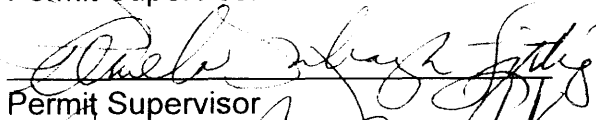
Page 2

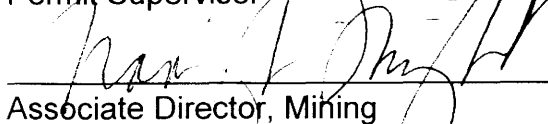
5. The operation would not affect the continued existence of any threatened or endangered species or result in the destruction or adverse modification of their critical habitats as determined under the Endangered Species Act of 1973 (16 USC 1531 et seq.) See concurrence letter from United States Fish and Wildlife, dated January 16, 1998. (R645-300-133.500)
6. The Division's issuance of a permit is in compliance with the National Historic Preservation Act and implementing regulations (36 CFR 800). See letter from State Historic Preservation Office, dated January 20, 1998. (R645-300-133.600)
7. The applicant has the legal right to enter and conduct mining activities in the federal coal lease issued by the Bureau of Land Management (See attached Lease U-024316, assignment April 21, 1980) (R645-300-133.300)
8. A 510 (c) report has been run on the Applicant Violator System (AVS), which shows that: prior violations of applicable laws and regulations have been corrected; neither Co-Op Mining Company nor any affiliated company, are delinquent in payment of fees for the Abandoned Mine Reclamation Fund; and the applicant does not control and has not controlled mining operations with demonstrated pattern of wilful violations of the Act of such nature, duration, and with such resulting irreparable damage to the damage to the environment as to indicate an intent not to comply with the provisions of the Act ( A 510 (c) report was verified on February 2, 1998, see memo to file dated February 2, 1998.) (R645-300-133.730)
9. Underground mining operations to be performed under the permit will not be inconsistent with other operations anticipated to be performed in areas adjacent to the proposed permit area.
10. The applicant has posted an irrevocable letter of credit for the Bear Canyon Mine payable to the Division and the Office of Surface Mining in the amount of \$525,000. No additional surety will be required at this time. because this action does not include any additional surface disturbance. (R645-300-134)
11. No lands designated as prime farmlands or alluvial valley floors occur on the permit area. (R645-302-313.100 and R645-302-321.100)


Findings  
Mining in the Tank Seam  
Federal Lease U-024316  
Page 3

12. The proposed postmining land-use of the permit area is the same as the pre-mining land use and has been approved by the Division and the surface land management agency, the United States Forest Service. (Consent letter dated February 10, 1998)
13. The Division has made all specific approvals required by the Act, the Cooperative Agreement, and the Federal Lands Program.
14. All procedures for public participation required by the Act, and the approved Utah State Program are in compliance. See Affidavit of Publication, dated June 3, 1997. (R645-300-120)
15. No existing structures will be used in conjunction with mining of the underground right-of-way, other than those constructed in compliance with the performance standards of R645-301 and R645-302 (R645-300-133.720)

  
Permit Supervisor

  
Permit Supervisor

  
Associate Director, Mining

  
Director

FEDERAL

Permit Number ACT/015/025 Issued February 12, 1998

STATE OF UTAH  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING  
1594 West North Temple, Suite 1210  
Salt Lake City, Utah 84114-5801  
(801) 538-5340

This permit, ACT/015/025, is issued for the state of Utah by the Utah Division of Oil, Gas and Mining (Division) to:

Co-Op Mining Company  
P. O. Box 1245  
Huntington, Utah 84528  
(801) 381-2450

for the Bear Canyon Mine. A collateral bond (Irrevocable Letter of Credit) is filed with the Division in the amount of \$525,000 payable to the State of Utah, Division of Oil, Gas and Mining and the United States Department of Interior, Office of Surface Mining Reclamation and Enforcement. The Division must receive a copy of this permit signed and dated by the permittee.

**Sec. 1 STATUTES AND REGULATIONS** - This permit is issued pursuant to the Utah Coal Mining and Reclamation Act of 1979, Utah Code Annotated (UCA) 40-10-1 et seq, hereafter referred to as the Act.

**Sec. 2 PERMIT AREA** - The permittee is authorized to conduct underground coal mining activities on the following described lands within the permit area at the Bear Canyon Mine, situated in the state of Utah, Emery County, and located:

**Township 16 South, Range 7 East, SLBM**

Section 13: W1/2W1/2;  
Section 14: S1/2,NE1/4;  
Section 23: E1/2, E1/2 NW1/4, E1/2 SW1/4;  
Section 24: All land West of North-South Trending Bear Canyon Fault;  
Section 25: All land West of North-South Trending Bear Canyon Fault; and  
Section 26: NE1/4 NE1/4, NW1/4 NE1/4, N1/2 SW1/4 NE1/4 and the access/haul road and topsoil storage area as shown on Plate 2-1 of the Mining and Reclamation Plan

This legal description is for the permit area of the Bear Canyon Mine. The permittee is authorized to conduct underground coal mining activities connected with mining on the foregoing described property subject to the conditions of the leases, the approved mining plan, including all conditions and all other applicable conditions, laws and regulations.

**Sec. 3 COMPLIANCE** - The permittee will comply with the terms and conditions of the permit, all applicable performance standards and requirements of the State Program.

**Sec. 4 PERMIT TERM** - This permit expires on November 2, 2000.

**Sec. 5 ASSIGNMENT OF PERMIT RIGHTS** - The permit rights may not be transferred, assigned or sold without the approval of the Director, DOGM. Transfer, assignment or sale of permit rights must be done in accordance with applicable regulations, including but not limited to 30 CFR 740.13{e} and R645-303.

**Sec. 6 RIGHT OF ENTRY** - The permittee shall allow the authorized representative of the DOGM, including but not limited to inspectors, and representatives of the OSMRE, without advance notice or a search warrant, upon presentation of appropriate credentials, and without delay to:

- (a) Have the rights of entry provided for in 30 CFR 840.12, R645-400-110, 30 CFR 842.13 and R645-400-220;
- (b) Be accompanied by private persons for the purpose of conducting an inspection in accordance with R645-400-210 and 30 CFR 842, when the inspection is in response to an alleged violation reported to the Division by the private person.

**Sec. 7 SCOPE OF OPERATIONS** - The permittee shall conduct underground coal mining activities only on those lands specifically designated as within the permit area on the maps submitted in the approved plan and approved for the term of the permit and which are subject to the performance bond.

**Sec. 8 ENVIRONMENTAL IMPACTS** - The permittee shall minimize any adverse impact to the environment or public health and safety through but not limited to:

- (a) Any accelerated monitoring to determine the nature and extent of noncompliance and the results of the noncompliance;
- (b) Immediate implementation of measures necessary to comply; and

- (c) Warning, as soon as possible after learning of such noncompliance, any person whose health and safety is in imminent danger due to the noncompliance.

**Sec. 9 DISPOSAL OF POLLUTANTS** - The permittee shall dispose of solids, sludge, filter backwash or pollutants in the course of treatment or control of waters or emissions to the air in the manner required by the approved Utah State Program and the Federal Lands Program which prevents violation of any applicable state or federal law.

**Sec. 10 CONDUCT OF OPERATIONS** - The permittee shall conduct its operations:

- (a) In accordance with the terms of the permit to prevent significant, imminent environmental harm to the health and safety of the public; and
- (b) Utilizing methods specified as conditions of the permit by DOGM in approving alternative methods of compliance with the performance standards of the Act, the approved Utah State Program and the Federal Lands Program.

**Sec. 11 EXISTING STRUCTURES** - As applicable, the permittee will comply with R645-301 and R645-302 for compliance, modification, or abandonment of existing structures.

**Sec. 12 RECLAMATION FEE PAYMENTS** - The operator shall pay all reclamation fees required by 30 CFR Part 870 for coal produced under the permit, for sale, transfer or use.

**Sec. 13 AUTHORIZED AGENT** - The permittee shall provide the names, addresses and telephone numbers of persons responsible for operations under the permit to whom notices and orders are to be delivered.

**Sec. 14 COMPLIANCE WITH OTHER LAWS** - The permittee shall comply with the provisions of the Water Pollution Control Act (33 USC 1151 et seq), and the Clean Air Act (42 USC 7401 et seq), UCA 26-11-1 et seq, and UCA 26-13-1 et seq.

**Sec. 15 PERMIT RENEWAL** - Upon expiration, this permit may be renewed for areas within the boundaries of the existing permit in accordance with the Act, the approved Utah State Program and the Federal Lands Program.

**Sec. 16 CULTURAL RESOURCES** - If during the course of mining operations, previously unidentified cultural resources are discovered, the permittee shall ensure that the site(s) is not disturbed and shall notify the DOGM. DOGM, after coordination with OSMRE, shall inform the permittee of necessary actions required. The permittee shall implement the mitigation measures required by DOGM within the time frame specified by DOGM.

**Sec. 17 APPEALS** - The permittee shall have the right to appeal as provided for under R645-300.

**Sec. 18 SPECIAL CONDITIONS** - There are special conditions associated with this permitting action, as described in Attachment A.

The above conditions (Secs. 1-18) are also imposed upon the permittee's agents and employees. The failure or refusal of any of these persons to comply with these conditions shall be deemed a failure of the permittee to comply with the terms of this permit and the lease. The permittee shall require his agents, contractors and subcontractors involved in activities concerning this permit to include these conditions in the contracts between and among them. These conditions may be revised or amended, in writing, by the mutual consent of DOGM and the permittee at any time to adjust to changed conditions or to correct an oversight. DOGM may amend these conditions at any time without the consent of the permittee in order to make them consistent with any federal or state statutes and any regulations.



Page 5  
ACT/015/025  
Federal Permit  
February 12, 1998

THE STATE OF UTAH

By: James P. Breyer

Date: 2/17/78

I certify that I have read, understand and accept the requirements of this permit and any special conditions attached.

\_\_\_\_\_  
Authorized Representative of the Permittee

Date: \_\_\_\_\_

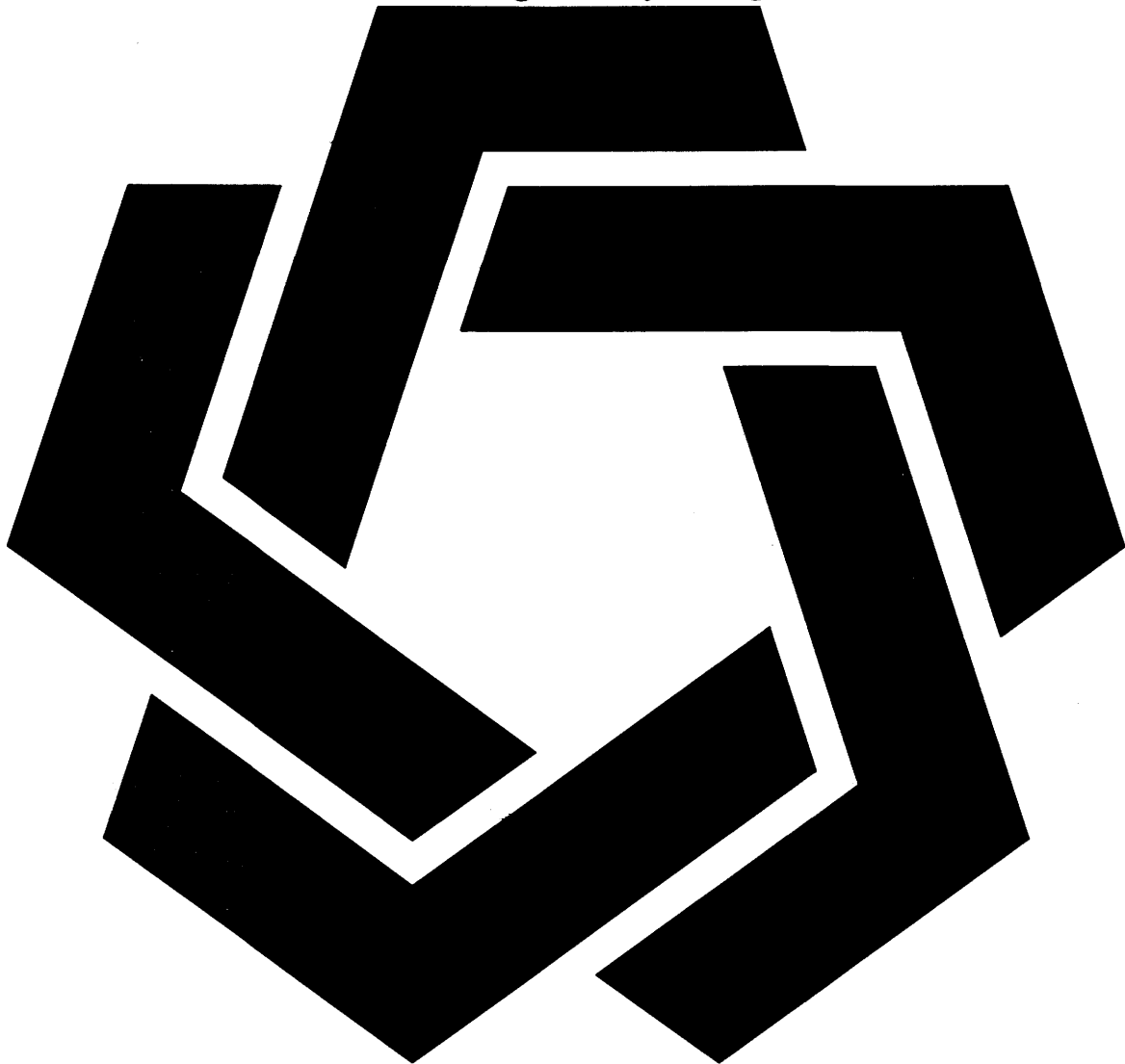
**ATTACHMENT A**  
**Special Conditions**

1. Division Order, Informal Hearing, Cause No. ACT/015/025, Dated May 20, 1991, as Modified on April 18, 1997

“Drainage or pumping of in-mine water to the old mine working north of the Big Bear and Birch Spring will be controlled and monitored as stipulated by the Division with revision of that procedure only as directed by the Division and with the prior approval of the Division.”

2. Mining in the Tank Seam in federal lease U-024316 may only commence after the federal mining plan approval for this permitting action has been obtained.

State of Utah  
Division of Oil, Gas and Mining  
Utah Coal Regulatory Program



Technical Analysis and Findings  
Bear Canyon Mine  
ACT/015/025  
Federal Lease U-024316  
Tank Seam Lease Addition  
January 8, 1998

## TABLE OF CONTENTS

INTRODUCTION .....	4
ENVIRONMENTAL RESOURCE INFORMATION .....	5
PERMIT AREA .....	5
MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION .....	5
Affected Area Boundary Maps .....	5
Coal Resource and Geologic Information Maps .....	5
Mine Workings Maps .....	6
Permit Area Boundary Maps .....	6
Surface and Subsurface Ownership Maps .....	6
Well Maps .....	6
Certification .....	7
Monitoring Sampling Location Maps .....	7
HISTORIC AND ARCHEOLOGICAL RESOURCE INFORMATION .....	8
VEGETATION RESOURCE INFORMATION .....	8
GEOLOGIC RESOURCE INFORMATION .....	9
GENERAL HYDROLOGIC INFORMATION .....	10
HYDROLOGIC RESOURCE INFORMATION .....	13
OPERATION PLAN .....	19
FISH AND WILDLIFE INFORMATION .....	19
MINING OPERATIONS AND FACILITIES .....	20
General .....	20

COAL RECOVERY .....	20
SUBSIDENCE CONTROL PLAN .....	21
Subsidence control plan .....	21
MAPS, PLANS, AND CROSS SECTIONS OF MINING OPERATIONS .....	21
Affected area maps .....	21
Mine workings maps .....	21
Monitoring and sample location maps .....	22
HYDROLOGIC OPERATIONAL INFORMATION .....	22

**TECHNICAL ANALYSIS**

---

**INTRODUCTION**

This Technical Analysis (TA) is written as part of the permit review process. It documents the Findings that the Division has made to date regarding the application for a permit and is the basis for permitting decisions with regard to the application. The TA is broken down into logical section headings which comprise the necessary components of an application. Each section is analyzed and specific findings are then provided which indicate whether or not the application is in compliance with the requirements.

It may be that not every topic or regulatory requirement is discussed in this version of the TA. Generally only those sections are analyzed that pertain to a particular permitting action. TA's may have been completed previously and the revised information has not altered the original findings. Those sections that are not discussed in this document are generally considered to be in compliance.

TECHNICAL ANALYSIS

---

# ENVIRONMENTAL RESOURCE INFORMATION

## PERMIT AREA

Regulatory Requirements: 30 CFR Sec. 783.12; R645-301-521.

### Analysis:

The permit area is proposed to be enlarged to include Federal Lease U-024316, which lies at the north end of the original permit area. The additional area is shown on Plate 2-1--Permit Area. A formal description of the additional area is found on page 2-3 and is as follows:

Township 16 South, Range 7 East, Salt Lake Base & Meridian  
Section 13: W¼  
Section 14: NE¼

### Findings:

This permit amendment fulfills the requirements of this section.

## MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 783.24, 783.25; R645-301-323, -301-411, -301-521, -301-622, -301-722, -301-731.

### Analysis:

#### Affected Area Boundary Maps

The permit area is proposed to be enlarged to include Federal Lease U-024316, which lies at the north end of the original permit area. The additional area is shown on Plate 2-1--Permit Area. Plate 2-1 was certified by Kimly C. Mangum, a licensed professional engineer registered in the state of Utah.

#### Coal Resource and Geologic Information Maps

The permit area is proposed to be enlarged to include Federal Lease U-024316, which lies at the north end of the original permit area. Coal resource and geologic information for the lease area was added to Plates 6-1 through 6-12. The geology of the area, including the locations of coal outcrops and property and lease boundary lines, is shown on Plate 2-1--Geologic Map.

## **TECHNICAL ANALYSIS**

---

There are 3 minable coal seams in Federal Lease U-024316. They are, from lowest to highest, the Hiawatha seam, the Blind Canyon seam, and the Tank seam. The thickness and orientation of the Hiawatha seam are shown, respectively, on Plates 6-7--Hiawatha Seam Isopach Map and 6-8--Hiawatha Seam Structure Contour Map. The thickness and orientation of the Blind Canyon seam are shown, respectively, on Plates 6-3--Blind Canyon Seam Isopach Map and 6-4--Blind Canyon Seam Structure Contour Map. The thickness and orientation of the Tank Seam are shown, respectively, on Plates 6-11--Tank Seam Isopach Map and 6-12--Tank Seam Structure Contour Map. The respective depths of the coal seams are shown on Plates 6-6--Hiawatha Seam Overburden Map, 6-2--Blind Canyon Seam Overburden Map and 6-10--Tank Seam Overburden Map.

All of the maps which were revised in 1997 to show the coal resource and geologic information for Federal Lease U-024316 were certified by Kimly C. Mangum, a licensed professional engineer registered in the state of Utah.

### **Mine Workings Maps**

The permit area is proposed to be enlarged to include Federal Lease U-024316, which lies at the north end of the original permit area. Plate 3-4C--Bear Canyon No. 2 Mine was revised to show anticipated panel and entry development in the lease area. Plate 3-4C was certified by Kimly C. Mangum, a licensed professional engineer registered in the state of Utah.

### **Permit Area Boundary Maps**

The permit area is proposed to be enlarged to include Federal Lease U-024316, which lies at the north end of the original permit area. The additional area is shown on Plate 2-1--Permit Area. Plate 2-1 was certified by Kimly C. Mangum, a licensed professional engineer registered in the state of Utah.

### **Surface and Subsurface Ownership Maps**

The permit area is proposed to be enlarged to include Federal Lease U-024316, which lies at the north end of the original permit area. Surface ownership information for the lease area was added to Plate 2-2--Surface Ownership. Subsurface ownership information for the lease area was added to Plate 2-3--Sub-Surface Ownership. Plates 2-2 and 2-3 were both certified by Kimly C. Mangum, a licensed professional engineer registered in the state of Utah.

### **Well Maps**

There are no known oil or gas wells in the permit area.



## TECHNICAL ANALYSIS

---

### **Certification**

Cross sections, maps, and plans included in this proposed Tank Seam amendment have been prepared by, or under the direction of, and certified by a qualified, registered, professional engineer.

### **Monitoring Sampling Location Maps**

In-mine drill holes TS-1 through TS-10, TS-12, TS-13, and TS-14 are listed in Table 7.1-5 and locations are shown on submitted maps. Water sampling point WM-C and eleven other in-mine drill-holes are listed in Table 7.1-5 but could not be located on any submitted maps; Co-Op Mining Company has indicated in the Tank Seam amendment (Table 7.1-5) that the locations for these bore-holes are not known. Drill holes DH-1A, DH-2, DH-3, and DH-4; SDH-1, SDH-2, and SDH-3; and MW-116 and MW-117 are listed in Table 7.1-4 and locations are on Plate 7-4.

Water sampling locations UT-1, PS-1, TS-1, CS-1, BP-1, and LT-1 in Trail Canyon are shown on Plate 2 and not on Plate 7-4. These are stations from the Trail Canyon Mine and do not need to be included in the Bear Canyon Mine MRP.

Slightly different locations for stream monitoring site BC-1 are shown on copies of Plates 2 and 7-4 that were included with the December 8 submittal. Charles Reynolds stated during a phone conversation on December 18 that the location on Plate 7-4 is correct and that Plate 2 would be corrected for the final submittal.

Maps showing elevations and locations of monitoring stations used to gather data on fish and wildlife and air quality were not revised for the proposed Tank Seam amendment.

The amendment includes a monitoring and sample location map. The permit contains a map that shows all previous and existing monitoring sites. This map was updated to show proposed monitoring.

### **Findings:**

This plan meets the minimum requirements of this section.

---

TECHNICAL ANALYSIS

---

**HISTORIC AND ARCHEOLOGICAL RESOURCE INFORMATION**

Regulatory Reference: R645-301-411.

**Analysis:**

No additional historic and archeological resource information was provided with the current lease application. No escarpment failure is expected with the current mining plan. If the mine proposes mining underneath the Castle Gate escarpment an archeological and historic resources inventory will be required.

**Findings:**

Information provided in the proposed application meets the minimum regulatory requirements of this section.

**VEGETATION RESOURCE INFORMATION**

Regulatory Reference: R645-301-320.

**Analysis:**

Plate 9-1, Vegetation Map was updated to include Federal Lease U-024316. The riparian community type along Bear Creek is shown to extended into the Federal Lease. No wetlands were delineated on the map. Plate 9F-1, Vegetation Resources Map for Federal Lease Area U-024316 was developed during vegetation field work for this lease. Plate 9F-1 does not correlate with Plate 9-1. Different vegetative communities are described for the same areas, for example, no riparian community is delineated along Bear Creek on Plate 9F-1. Plate 9F-1 is of a larger scale and was verified in the field and therefore will be considered the correct map of the lease area. The vegetation descriptions as well as the map units on Plate 9-1 is of concern and will need to be resolved but will not be tied into this lease approval since Plate 9F-1 meets the requirements for this approval.

**Findings:**

Information provided in the proposed application meets the requirements of this section.

TECHNICAL ANALYSIS

---

## GEOLOGIC RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 784.22; R645-301-623, -301-724.

### Analysis:

The current MRP includes geologic information to assist in determining the probable hydrologic consequences of the operation upon the quality and quantity of surface and ground water in the permit and adjacent areas. The only change to the text in Chapter 6 - Geology in the proposed Tank Seam amendment is removal of the "Upper Beds" from the list of coal beds in Table 6-2 on page 6-17. What was previously referred to as the Bear Canyon coal seam is now referred to fairly consistently throughout the text and on maps as the Blind Canyon coal seam.

All plates for Chapter 6 have been updated with information from additional drill holes. Well completion diagrams for drill-holes SDH-1, SDH-2, and SDH-3 have been added to Appendix 7-A and the drill-hole log for TS-14 is added to Appendix 6A. Water levels and stratigraphy for SDH-1 and SDH-2 are shown on Plates 7J-1 and 7J-2, and water levels are tabulated on page 7-27.

Figures 7.1-2 and 7.1-3, generalized cross sections, are being removed from the plan but Plates 7J-1 and 7J-2 are detailed cross sections that have been added as part of the Tank Seam amendment. Figure 7.1-4, which is a generalized stratigraphic section, has been removed from the body of the MRP and is now Table 2-4 in Appendix 7-J. Figure 7.1-5 was a stratigraphic section based on interpretation of a geophysical well-log from bore-hole T-5; the information has been incorporated into Plate 7-9, a stratigraphic correlation diagram or cross section, but with less detail.

Water levels for Los Angeles Department of Water and Power (LADWP) wells MW-116 and MW-117 are discussed in the proposed Tank Seam amendment. Collar elevations and water elevations are in Table 7.1-4. Plate 7J-2 shows the water levels in these wells and the relationship of the potentiometric surfaces on each side of the Bear Canyon fault and formation contacts. Figures 7A-17 and 7A-18 show general stratigraphy and well completion details for these two wells. Lithologic characteristics and water levels are also shown on Plate 7-9, where these wells are labeled M91-16 and M91-17. Locations are shown on Plate 7-4.

Information on 20 in-mine drill holes is listed in Table 7.1-5. Most of these were drilled upward, and all but 2 were dry. Locations of 8 of the bore-holes, TS-6 through TS-10 and TS-12 through TS-14, are on Plate 6-11. Locations of the other 12 bore-holes are not known, but drillhole logs are in Appendix 7A. Drillhole logs for TS-6 through TS-10 and TS-14 are in Appendix 6-2. Logs are not available for TS-12 and TS-13. There is no information on TS-11

## TECHNICAL ANALYSIS

---

and it may be that it was not drilled, but this is not stated explicitly in the MRP. Water quality data from bore-hole WM-C is included in Table 7.1-1.

Locations, isopach thicknesses, and coal seam elevations for bore-holes T-1, T-2, T-4, and T-5 are on Plate 6-2 through 6-12. Lithologic characteristics and ground-water elevations are shown on Plate 7-9.

Plates 6-2 through 6-12 also show locations for WHR-1, WHR-2, WHR-3, WHR-5, and WHR-8. These five drill-holes are outside the proposed permit areas but fall within the adjacent area and within the Cumulative Impact Area (CIA). Co-Op Mining Company has no hydrology information for these bore-holes.

There is no new information on potentially acid- or toxic-forming strata. Mining proposed in the area covered by the Tank Seam amendment should not require a change to the current reclamation plan. Plates 6-2 through 6-12 have been updated and the information can be used to upgrade the subsidence control plan, if necessary.

Appendix 7-N contains a detailed hydrologic evaluation of the Star Point aquifers.

### Findings:

Information provided in the proposed Tank Seam amendment is considered adequate to meet the requirements of the Geologic Resources section.

### GENERAL HYDROLOGIC INFORMATION

Regulatory Reference: R645-301-411, -301-521, -301-721.

As mining has progressed some of the permittee's general understanding of the environmental ground water resources have changed. Related changes in section 7.1.2 and 7.1.3 have been incorporated into this amendment. Major changes are identified and discussed below:

1. Separate and distinct aquifers exist in the Spring Canyon, Storrs and Panther tongues of the Star Point Sandstone rather than one single aquifer within the Star Point/Blackhawk Formation. The formations of the Star Point Sand Stone were stated to be unsaturated in the southern portions of the permit area. The separate potentiometric surface determination is based on information from the in-mine drill holes DH-1, DH-2, and DH-3. The formations are saturated at the north end of the

---

TECHNICAL ANALYSIS

---

site. However, the following statements are presented to lend caution to interpretation of this information.

- a. The wells were drilled following mining. Therefore, it is unknown what the water elevation in the formations were prior to mining. Two factors may drive this condition, one factor is the presence of the low permeability Mancos tongue and the second is that the outcrops of the formation essentially function as an outlet, similar to a well drawing down the potentiometric surface to some distance up gradient. The separateness of the aquifers in this location probably occurred for some distance up gradient prior to mining.
  - b. Lateral flow between the tongues of the formation is greater than vertical flow through the tongues except where fractured. This could result in the observed separate piezometric surfaces.
  - c. Information presented in the Star Point Mine found that the Blackhawk and Star Point formations were in hydrologic connection to the north of the Bear Canyon Mine. (See the CHIA for further information). The Bear Canyon Mine Plan also indicates that all three tongues are saturated at the northern end of the site in Appendix 7-J, pg. 7-33.
2. Previously the permittee indicated that the "Bear Spring flow is derived from water bearing zones north of the mine site and includes water originating from the Star Point Blackhawk contact, cut by the fault to the north of the springs". The permittee no-longer provides a statement in this section about the area that recharges Big Bear Spring. General recharge information is provided under section 7.1.33. Snowmelt at higher elevations provides the recharge for the ground water system and is controlled by; permeability of the strata; surface relief and, rate of snowmelt, formation outcrops, and alluvium within the drainages of the Bear Canyon Area.
- Although some of the water could enter the system in the manner described by the permittee this does not explain the quick recharge and historic seasonal response to snowmelt which would occur through fracture flow. These fracture flows could also contribute to recharge. Big Bear Spring is considered to have a component of modern water recharge as is suggested by tritium dating conducted on the spring.
3. Previously the permittee stated that the Big Bear Spring fault and related sub-parallel fault zones are the primary control for a major amount of ground water occurring in the permit area. The permittee states that the relative dryness of the faults and the existence of fault gouge in the mine indicate that little or no flow

### TECHNICAL ANALYSIS

---

across these faults occur. On page 7-16, the plan states "secondary permeability due to voids in joints or fractures, may occur in a near vertical direction." The description under section 7.1.4 suggests that flows exist which moves downward through permeable strata, faults and joints and then move laterally until other permeable strata, faults and, joints allow vertical movement. In appendix 7-J, page 2-5, Big Bear and Birch Springs are stated to issue from fault and joint zones of the Panther Tongue of the Star Point.

Additional information was provided in appendix 7-J, page 2-7 in the plan. Groundwater has entered the mine through roof bolt holes and fractures. In past PHC discussions, drainage of water from faults and fractures were stated to produce the largest volumes of water flowing into the mine. And, the crossings of the fault in the East Bleeders E ½, SE ¼ of section 14, was considered the principal source of water in the portal sump which then re-entered the fracture. Now it is presented that the majority of the water is from the sand channel. It is my understanding that the portal sump area was never a collection point for the water dating techniques. See: attached pages 7-6 and 7-17 from the Federal Lease Application U-024316.

4. Previously the permittee stated that secondary permeability is present along the near-vertical joints and bedding plains. Now, the permittee states that permeability is generally low with the exception of the Castlegate Sandstone.

The statement on permeability and porosity for the Star Point formation is more descriptive in section 7.1.4. Fractured zones and fractured bedrock will have the greatest permeability. The peak flows and quick recharge of some springs supports the concept that recharge occurs through permeable fracture flows.

Because the potentiometric surface to the north of the mined area at SW-2 has an increased potentiometric surface gradient in the Spring Canyon Tongue between SW-2 and SDH-1, and because the source of recharge to Big Bear Springs has not been identified, there is a need for additional monitoring and data collection to determine the recharge zone to Big Bear Springs and verify the elevations of the potentiometric surface(s).

The information presented on pages 1-7 and 1-8, submitted on 06/18/97 are no longer contrary to text presented in other areas of the plan.

### **Findings:**

This permit amendment meets the minimum requirements of this section related to mining the Tank Seam.

TECHNICAL ANALYSIS

---

## **HYDROLOGIC RESOURCE INFORMATION**

Regulatory Reference: 30 CFR Sec. 701.5, 784.14; R645-100-200, -301-724.

### **Analysis:**

#### **Baseline Information**

This section reviews baseline information as it is related to the proposed tank seam lease addition, the addendum is to be attached to appendix 7-J.

#### **Ground-water information**

Data is presented for ground water observation wells in table 2-4. Stratigraphic logs were presented for SDH-1, SDH-2 and SDH-3. However, the dates the drilling was conducted was not legible on the logs. This information was obtained by the Division through a phone conversation with Charles Reynolds, CO-OP. The information relating the extent of the mine workings to the uppermost known potentiometric surface of the Blackhawk/Star Point aquifer was provided in the informal conference. That information is now incorporated in the plan with the northern most extent of the proposed workings identified. Information presented in table 2-4 includes water elevations used to build the cross-section. Water elevations for DH-1A, DH-2 and DH-3A were obtained in December 1995; water elevations from drill holes SDH-1, obtained in August 1994; water elevations in SDH-2 and SDH-3, were obtained in August 1995; and water elevations in drill holes MW-117 and MW-116, were obtained in September 1996.

The location of SDH-3 is now provided on the monitoring location map. In a telephone discussion with Charles Reynold's, environmental engineer for the Co-Op Mining Company, Charles indicated that only one sample was obtained from well SDH-1 before the well failed. SDH-2 has a faulty water monitoring device, which the mine has corrected (fall of 1997).

SDH-1 and SDH-2 lie between the same geologic fault features north of the minesite and provide data pertinent to the operations. The MW wells lie to the east of the Bear Canyon Fault and are probably in hydrologic isolation from the proposed mining. The water elevation, 7964 feet, at SDH-2 in August, 1995, was obtained in a period where there was a lowering of the potentiometric surface. The observed water elevation at SDH-2 was 7975.8 feet, on September 02, 1997, an increase in elevation of 11.8 feet since the initial well development. The change in water elevation at SDH-2 may be the result of climatic variation and potentially mine pumping operations conducted at Star Point Mine.

## TECHNICAL ANALYSIS

---

The increased potentiometric surface at SDH-2 and steep slope of the potentiometric surface to SDH-1 may indicate that there is a loss of water somewhere between SDH-2 and SDH-1. Additionally it could be that the potentiometric surface at SDH-1 had not stabilized. The decreased potentiometric surface may be from losses to the surface through Bear Canyon Creek, the McCadden Hollow/Trail Canyon drainage, and the Bear Canyon Fault Zone. The Bear Canyon Fault and sympathetic faults may in turn, re-charge the Big Bear Springs.

SDH-3 is separated from Bear Canyon by the Blind Canyon Fault and an unnamed fault, and was not considered to be information associated with the proposed mining block. However, this data is needed to provide information for the Trail Canyon Mine area. Since little information on the groundwater hydrology of this area is available, the information from SDH-3 is pertinent to the Trail Canyon Mine and some information suggests it may recharge Big Bear Spring.

SDH-3, and SDH-2 were added to the monitoring schedule and will be analyzed for field parameters. A sample for isotopic dating and baseline parameters will be obtained as soon as practical in the spring and prior to mining the northern half of Section 14.

### Spring Data

Baseline spring sampling was conducted for the sites as identified in table 1 below. The sampling period for most sites was conducted from 1993 through 1994 for sites in McCadden Hollow. While the sampling period for springs within Bear Canyon were conducted between 1993 and 1996.

Review of the available information on the McCadden Hollow Springs indicates that the recharge area for most of the spring sites are localized, except for FBC-4 and FBC-13 which may have a more extensive recharge. The recharge area is believed to be more extensive since flow rates were observed throughout the monitoring period. These springs appear to be associated with fault/fracture systems and are located at the northern most portion of the canyon. FBC-13 flowed at the highest rate and ranged from 22 to 60 gallons per/minute over the period for which data was collected.

The Tank Seam is above the potentiometric surface and this reducing the potential for mining to intercept the Star Point Potentiometric Surface. Additional drill holes to the Star Point Formation at the northern end of the proposed mine workings may provide additional information with which greater confidence can be placed in determining the hydro-geologic distribution of water in the region. The plan commits to drill well SDH-1A and obtain water levels for each tongue of the Star Point Formation after adequate time for the water to reach equilibrium. Well levels will be taken at the same time as wells SDH-2 and SDH-3. The wells will then be sealed.



**TECHNICAL ANALYSIS**

The proposed extent of mining is approximately 2,250.00 feet away from the southern most spring FBC-2 (estimated by the Division from information contained on plates 7-4 and 3-4C). The localized dip for McCadden Hollow area was not presented on the geologic map. However the regional dip of the lower coal bed north of McCadden Hollow is presented by Dohling 1972, as dipping to the south. Therefore, the likelihood of these springs being impacted during this proposed mining phase would be low.

The sampling period for the springs in Bear Canyon provided a minimum of 2 samples per quarter over the period sampled (except for the 1<sup>st</sup> quarter when access is difficult). These sites are located above the coal seam and adjacent to the area proposed to be mined. The Bear Canyon Fault is near the springs. The porosity of the fractures/fault system may play a part in flows at these springs. Spring flows from FBC-12 have ranged from 21 to 100 gpm while flows from site 16-7-13-1 ranged from 4 to 12 gpm. These sites are potentially more susceptible to the effects from mining because they are closer to the proposed extent of the mine. However, they do issue out of the formation above the mine and on the east side of the Bear Canyon Fault. The furthest proposed extent of mining occurs to the south of these springs and on the west side of the Bear Creek Fault.

A buffer zone is proposed along the creek, where the development pillars will not be removed, in order to protect Bear Creek and the Castlegate outcrop. Based on the information reviewed for the Bear Canyon area springs, the operator has obtained adequate baseline data for the proposed tank seam mine operation.

**Table 1: Baseline Spring Sampling**

Site/Location	Date	Site Condition	Comments
FBC-2/McCadden Hollow.	08/01/91	Flowing	Available in the existing plan.
	10/04/92, 6/21/93, 6/16/94.	Not found	
	3/22/93	No Access	
FBC-3/McCadden Hollow.	08/01/91	Flowing	Available in the existing plan.
	6/21/93, 10/15/93, 6/16/94	Not found	
	3/22/93	No Access	

TECHNICAL ANALYSIS

FBC-4/McCadden Hollow.	6/24/93, 8/29/93, 10/15/93, 6/15/94, 8/30/94, 10/31/94.	Flowing	Existing plan baseline sample obtained 08/01/91, 10/13/92.
	3/22/93, 3/30/94,	No Access	
FBC-12/Bear Creek Canyon.	6/29/93, 8/29/93, 10/15/93, 6/15/94, 8/29/94, 10/31/94.	Flowing	
	3/22/93, 3/30/94,	No Access	
FBC-13/North Slope McCadden Hollow.	8/29/93, 10/15/93, 6/15/94, 8/30/94, 10/31/94, 6/28/95.	Flowing	Not found on map.
	3/22/93, 3/30/94.	No Access	
16-7-13-1/ Bear Creek Canyon.	6/8/94, 10/28/94, 7/10/95, 10/18/95, 7/18/96.	Flowing	Associated Water Right.
	3/22/93, 3/29/95	No Access	

**Surface-water Information**

Changes in the surface water collection were presented associated with the new lease area. Surface water for the McCadden Hollow Drainage was collected from 1993 through 1994. See table 2. As stated above, the regional dip of the lower coal bed north of McCadden Hollow dips to the south, the likelihood of the springs being impacted during this proposed mining phase is considered low because these springs issue above the coal and are dissected by the drainage north of the area proposed to be mined. This drainage is described as an intermittent drainage. With the exception of spring runoff and precipitation events, the base flows are probably fed by the springs from the north side of the drainage (the combined upstream spring flow values are almost equal to the stream flow for measurements made within the same time). For the presented assumptions and the information reviewed the baseline monitoring for the surface water in McCadden Hollow is determined adequate.

TECHNICAL ANALYSIS

**Table 2: Surface Water Sampling**

Site/Location	Date	Site Condition	Comments
FBC-1/McCadden Hollow.	6/21/93, 8/29/93, 10/15/93, 6/16/94	Flowing	Existing plan baseline sample obtained 07/31/91
	8/30/94, 10/31/94	Dry	Existing plan dry baseline sample obtained 10/04/92
	3/22/93, 3/30/94	No Access	

**Baseline Cumulative Impact Area Information**

The Division is concurrently conducting an update of the CHIA based on the changes submitted in the PHC. Most of these changes are related to current operations and are not directly a result of the proposed Tank Seam Amendment. A separate analyses is being conducted for the Tank Seam Amendment as analyses of the Gentry Mountain CHIA will take additional time. Mining of the Tank Seam is not expected to have an adverse affect on water resources outside the permit area, or result in material damage of water resources.

**Alternative Water Source Information**

On page 1-11 the plan states "...mitigating measures will be employed if any significant impact occurs." On page 7 -34, the plan states "In the event mining reaches far enough north to mine at an elevation below Bear Creek, an adequate barrier will be left to completely prevent any impact to Bear Creek". The Division believes that as long as the fracture is not intercepted (the workings are placed to the west of the fracture), any water conveyed through the fracture would be more likely to follow the fracture then move into the mine workings.

Alternate replacement for the State and Federal requirements for 30 CFR 817.54 and lease stipulation 19 (pg.2F-10) are presented on page 3-42. Potential alternate water sources are described, and a commitment is included in the plan to obtain Forest Service approval for water sources affected on the Federal Lease and a commitment to replace water supplies in quality and quantity if the supply is impacted by mining operations. A commitment to replace spring water at the source should springs be affected by subsidence is included on page 3-43, section 3.3.6.

Because this is an underground coal mining activity the requirements of R645-301-727 do not apply. The plan meets the minimum requirements of R645-301-727.

## TECHNICAL ANALYSIS

---

### Probable Hydrologic Consequences Determination

The plan states the following on page 1-8. "Bear Canyon Mine will have no impact on the quantity of groundwater." The plan should clarify this statement presenting discussions of ground water quantity changes contained elsewhere in the plan. An incorrect statement is made that suspended sediments will be mitigated. A mitigation plan for suspended sediments was not found in the plan. The permittee has incorrectly used the word, mitigation, the appropriate word for the context used is minimize impacts.

The current mining of Lease U-024316 will occur in the Tank Seam only until additional hydrologic and geologic information can be obtained. The Blind Canyon and Tank Seam have recoverable reserves in this lease but, it is uncertain if they can be mined.

The plan states that minor fracturing has been noted in relation to the Bear Canyon Mine (Plate 3-3). Some fracturing and escarpment rock fall have been noted in the Trail Canyon Mine area. A misleading statement can be found on page 3C-2 under the subsidence monitoring plan. Where it was stated that no actual subsidence has been noted from areas pillared as much as 40 years ago. One significant "chimney plug" subsidence event occurred in a drainage above Birch Springs. This event was not mentioned in the discussion. Other minor occurrences were exhibited in areas of relatively low cover and unknown outcrop protection.

To prevent subsidence to Bear Creek and the adjacent ledges, no retreat-mining is projected east of the in-mine fault paralleling the section line between sections 13 and 14, T.16.S., R.7.E. (plate 3-4C). Approximately 1200 feet of cover exists in the S.W. corner of Section 13. A non-subsidence zone in a 100 to 200 ft wide corridor from the outcrop and permit boundary area are shown on Plate 3.

The separate potentiometric surface of the Star Point is provided to support a determination that no adverse impact is expected to occur due to mining the Tank Seam. However, there are several potential recharge scenarios for the Big Bear Spring and one is that the Bear Canyon Fault Zone and sympathetic faults conduct flow to Big Bear Spring. If this is the case, then mining the Tank Seam could increase or decrease flows to the spring. Because, the mine lies above the potentiometric surface and the mining plan is designed to minimize subsidence in this area, the potential for impact is low.

Because the area to be mined in the Tank Seam is approximately 200 feet above the potentiometric surface, it is reasonable to assume mining would not intercept the Star Point potentiometric surface.

---

TECHNICAL ANALYSIS

---

**Findings:**

The plan meets the minimum requirements of this section.

## **OPERATION PLAN**

### **FISH AND WILDLIFE INFORMATION**

Regulatory Reference: 30 CFR Sec. 784.21, 817.97; R645-301-322, -301-333, -301-342, -301-358.

**Analysis:**

**Protection and enhancement plan.**

Known raptor nest sites in the area are shown on Plate 3-3 and in Appendix 10-D. One nest is shown in the Federal Lease which was last surveyed in 1996. The "unknown Buteo" nest was tended in 1991 but not found in 1996. Major impacts to fish and wildlife would be caused by subsidizing the Castlegate cliff escarpment and Bear Creek. The current mining plans associated with this permit amendment, 97A, do not allow for pillaring or second mining under the Castlegate escarpment, thus reducing any chance for subsidence. No mining is currently proposed under Bear Creek where it runs through the Federal Lease.

The operator has committed to retaining a copy of the raptor monitoring reports at the mine site. Surveys will be conducted every five years. The reports must be made immediately available to the Division upon request. If future mining plans consider subsidizing cliff escarpments then annual raptor monitoring may be required.

There is a potential for Townsends and Spotted Bats to occur along the cliff escarpment in Bear Canyon. At this time no survey will be required however, prior to any future request for cliff subsidence a survey will be required.

**Findings:**

Information in the Tank Seam Lease Application is considered adequate to meet the minimum requirements of this section.

## TECHNICAL ANALYSIS

---

### **MINING OPERATIONS AND FACILITIES**

Regulatory Reference: 30 CFR Sec. 784.2, 784.11; R645-301-231, -301-526, -301-528.

#### **Analysis:**

##### **General**

The permit area is proposed to be enlarged to include Federal Lease U-024316, which lies at the north end of the original permit area. The additional area is shown on Plate 2-1--Permit Area.

All 3 minable seams--the Tank seam, the Blind Canyon seam, and the Hiawatha seam--are mined in Federal Lease U-024316. The Blind Canyon seam, which is the middle seam, is entered directly through the Bear Canyon #1 portal. The Hiawatha Seam, which is the lower seam, is entered by way of a rock slope from the Blind Canyon Seam. The Tank Seam, which is the upper seam, is entered directly through the Bear Canyon #2 portal. Main entries are columnized to prevent "punching" from the upper to the lower seams.

#### **Findings:**

This amendment fulfills the requirements of this section.

### **COAL RECOVERY**

Regulatory Reference: 30 CFR Sec. 817.59; R645-301-522.

#### **Analysis:**

The addition of Federal Lease U-024316 will boost annual production to approximately 750,000 tons. The overall recovery rate in this Federal lease area is expected to be about 50%, which is the national average for room-and-pillar operations of this type.

#### **Findings:**

This amendment fulfills the requirements of this section.

---

TECHNICAL ANALYSIS

---

## **SUBSIDENCE CONTROL PLAN**

Regulatory Reference: 30 CFR Sec. 784.20, 817.121, 817.122; R645-301-521, -301-525, -301-724.

### **Analysis:**

#### **Subsidence control plan.**

The permit area is proposed to be enlarged to include Federal Lease U-024316, which lies at the north end of the original permit area. Three subsidence monitoring points are added to the existing network to include the Federal lease area. The locations of these points are shown on Plate 3-3--Subsidence Map.

Using standard subsidence charts, the permittee has calculated the maximum anticipated subsidence from the mining of each coal seam and has tabulated that information on page 3C-4.

### **Findings:**

This amendment fulfills the requirements of this section.

## **MAPS, PLANS, AND CROSS SECTIONS OF MINING OPERATIONS**

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-512, -301-521, -301-542, -301-632, -301-731, -302-323.

### **Analysis:**

#### **Affected area maps.**

The permit area is proposed to be enlarged to include Federal Lease U-024316, which lies at the north end of the original permit area. The additional area is shown on Plate 2-1--Permit Area. All other relevant maps were also revised to show the Federal lease. Plate 2-1 and all other revised maps were certified by Kimly C. Mangum, a licensed professional engineer registered in the state of Utah.

#### **Mine workings maps.**

The permit area is proposed to be enlarged to include Federal Lease U-024316, which lies at the north end of the original permit area. Plate 3-4C--Bear Canyon No. 2 Mine was revised to show anticipated panel and entry development in the lease area. Plate 3-4C was certified by Kimly C. Mangum, a licensed professional engineer registered in the state of Utah.

**TECHNICAL ANALYSIS**

**Monitoring and sample location maps.**

The permit area is proposed to be enlarged to include Federal Lease U-024316, which lies at the north end of the original permit area. Three subsidence monitoring points were added to the existing network to include the Federal lease area. The locations of these points are shown on Plate 3-3--Subsidence Map. Plate 3-3 was certified by Kimly C. Mangum, a licensed professional engineer registered in the state of Utah.

**Findings:**

This amendment fulfills the requirements of this section.

**HYDROLOGIC OPERATIONAL INFORMATION**

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

**Ground-water Monitoring**

The Table 7.1-6 indicates under the heading "Type of data Collected and Reported" that ground water quality monitoring for springs will be obtained once for a low flow sample. It is assumed this refers to the baseline data collected and not the quarterly collection. The reclamation monitoring was previously approved for a single sample at low flow. However, this may need to be changed in the future based on information collected through the operation phase. The reason this should be assessed is because the potential for impact to water quality may be great during a high flow following a low flow period. Additional sites were added and are identified in Table 3.

**Table 3: Operational Spring and Groundwater Sampling**

Site/Location	Sampling period	Sampling Parameters	Formation
SBC-12, previously FBC-12/Bear Creek Canyon.	May, July, August, October.	Operational	North Horn
FBC-13/1st east in-mine pillared area.	Feb, May, August, October.	Operational	Blackhawk, Sandstone Channel



**TECHNICAL ANALYSIS**

SMH-1, previously FBC-6/McCadden Hollow.	May, July, August, October	Operational	North Horn
SMH-2 previously FBC-2/McCadden Hollow.	May, July, August, October	Operational	Price River
SMH-3 previously FBC-13/McCadden Hollow.	May, July, August, October	Operational	North Horn
SMH-4 previously Hollow. FBC-4/McCadden	May, July, August, October	Operational	North Horn
SMH-5 previously FBC-5/McCadden Hollow.	May, July, August, October	Operational	North Horn

The permittee has indicated that a waterline will be installed from the Blind Canyon Seam up through a borehole to the Tank Seam. Meter readings will be obtained monthly and submitted to the division on a quarterly basis.

**Surface-water Monitoring**

The surface water collection MH-1, previously baseline site FBC-1, is proposed to be monitored in May, July, Aug, and October in association with the new lease area. According to table 7.1-8 this site is to be monitored according to the operational parameters.

The reclamation monitoring was previously approved for a single sample at low flow. However, this may need to be changed in the future based on information collected until the time when reclamation occurs. This should be assessed because the potential for impact to water quality may be greatest during high base flow periods if water from the mine is recharging the streams.

**Findings:**

The plan meets the minimum requirements of this section as it relates to the tank seam amendment.

**GENTRY MOUNTAIN**  
**CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT (CHIA)**

**Tank Seam Addendum Findings**

**IN**  
**CARBON COUNTY AND EMERY COUNTY, UTAH**

**January 2, 1998**

**For**

**BEAR CANYON MINE**  
**ACT/015/025**

## **I. Introduction**

The Division is concurrently conducting an update of the Gentry Mountain CHIA based on current data. It is expected that with the complexity and volume of data to be analyzed and compiled this CHIA will be completed in February, 1998. Because this schedule will impede mining activities, a finding addendum to the existing CHIA is made herein.

The mining plan for the Tank Seam was designed to prevent material damage to the hydrologic balance outside the permit area. The Cumulative Impact Area (CIA), as shown on Figure 2 of the Gentry Mountain CHIA, has not changed with the addition of the Tank Seam Lease.

In discussions with Charles Reynolds, representing CO-OP, it was indicated the Blind Canyon and Tank Seam have recoverable reserves in this lease but, it is uncertain if they can be mined. The proposed mining of Lease U-024316 will occur in the Tank Seam only. Therefore, this addendum only contemplates the mining of the Tank Seam Amendment according to the amendment approved in January, 1998.

The objectives of this findings addendum is to:

- Predict the type and magnitude of impact to the hydrologic system associated with the proposed Tank Seam operation in conjunction with existing and anticipated mining.
- Identify standards against which predicted impacts can be compared.
- Make a statement of findings.

## **II. Potential Impacts to the Hydrologic System Associated With Mining The Tank Seam.**

In an attempt to consider all potential impacts the Tank Seam amendment may have on hydrologic resources, operations and resource information were reviewed to determine potential changes in ground water quantity and quality on the following resources: Mc Cadden Hollow Springs and Stream flow, Big Bear Springs, Bear Creek, and Groundwater that may be in the flow pathway of a significant source. Consideration of mining impacts, other than those that result from mining the Tank Seam, associated with past and present mining operations within the Gentry Mountain CHIA are not discussed herein. This information will be provided in forthcoming Gentry mountain CHIA update.

### **Springs**

Available information on the McCadden Hollow springs indicates that the recharge area for most of the spring sites are localized, except for FBC-4 and FBC-13 which may have a more extensive recharge area. These springs and their recharge area are up dip and north of the proposed mining.

The proposed extent of mining is approximately 2,250.00 feet away from the southern most spring FBC-2 (estimated by the Division from information contained on plates 7-4 and 3-4C). The dip of the localized area in McCadden Hollow were not presented on the geologic maps. However the regional dip of the lower coal bed north of McCadden Hollow is presented by Dohling 1972, as dipping to the south. Since the mining will be south of these sites, the likelihood of these springs being impacted during this proposed mining phase in water quality or water quantity would be low.

There are several potential recharge scenarios for the Big Bear Spring and one is that the Bear Canyon Fault Zone and sympathetic faults conduct flow to Big Bear Spring. If this is the case, then, mining the Tank Seam could increase or decrease flows to the spring. However, the area to be mined under this permitting action, lies above the potentiometric surface, therefore, the potential for mining in the tank seam to affect Big Bear Spring Flow is low. The mine plan is designed to minimize subsidence in this area, further reducing the potential for impact.

### **Interception Ground Water Flows**

Because the Tank Seam is above the potentiometric surface, it is reasonable to assume mining would not intercept the Star Point aquifer waters. The potentiometric surface is the water level in the aquifer under pressure. If there is enough pressure and a flow path, water could move into the mine through the floor, through a fracture, or a drill hole. This seems unlikely if you assume that drill hole DH-4 was stabilized or near equilibration when monitored. Further more the floor of the Tank Seam is approximately 375 feet above the first tongue of the Star Point Sandstone formation. The potentiometric surface at DH-4 was approximately 200 feet below the mine and is near the northernmost extent of the proposed mining area in August of 1995 (well SDH-1 failed in 1994, and was not used in this exercise). Even though the potentiometric surface at SDH-2 is 7964 feet m.s.l., almost 200 feet above the elevation of the mined area. The slope intercept between SDH-2 and SDH-1, assuming a straight line, is approximately 2,160 linear feet away from the northernmost extent of the workings making interception of the potentiometric surface unlikely. Interception of perched aquifers above the coal may occur.

### **Surface-water Information**

Surface water for the McCadden Hollow Drainage was collected from 1993 through 1994. With the exception of spring runoff and precipitation events, the base flows are probably fed by the springs from the north side of the drainage (the combined upstream spring flow values are almost equal to the stream flow for measurements made within the same time period). As stated above, the regional dip of the lower coal bed north of McCadden Hollow dips to the south, the likelihood of the springs being impacted during this proposed mining phase is considered unlikely because these springs issue above the coal and are dissected by the drainage north in an are north of the area proposed to be mined. This drainage is described as an intermittent drainage.

To prevent subsidence to Bear Creek and the escarpment adjacent to the creek, no retreat-mining is projected east of the in-mine fault paralleling the section line between sections

13 and 14, T.16.S., R.7.E. (plate 3-4C). This will eliminate the potential for increased sedimentation by slope failure or sediment transport to Bear Creek from subsidence. Approximately 1,200 feet of cover exists in the S.W. corner of Section 13. A non-subsidence zone corridor varies from 100 to 200 ft in width from the outcrop and permit boundary area.

### **Discharge to Surface Waters**

Presently minewater is discharged from the Bear Canyon Mine at the UPDES Discharge monitoring point. The Tank Seam is expected to be dry and will require water to be pumped from the Blind Canyon Seam potentially reducing the discharge to Bear Creek. A waterline will be installed from the Blind Canyon Seam up through a borehole to the Tank Seam. Meter readings will be obtained monthly and submitted to the division on a quarterly basis. Mining has artificially increased flows to the creek through mine water discharge.

### **III. Material Damage Standards**

Material damage is not defined in either the Utah or Federal regulations. Criteria that are used to determine material damage to hydrologic resources in coal mining programs administered by other states or by the Federal Office of Surface Mining (OSM) include:

- Actual or potential violation of water quality criteria established by federal, state or local jurisdictions.
- Changes to the hydrologic balance that would significantly affect actual or potential uses as designated by the regulatory authority.
- Reduction, loss, impairment, or preclusion of the utility of the resource to an existing or potential water user.
- Short term (completion of reclamation and bond release) impairment of actual water uses that cannot be mitigated.
- Significant actual or potential degradation of quantity or quality of surface water or important regional aquifers.

### **MATERIAL DAMAGE CRITERIA - RELEVANT STANDARDS AGAINST WHICH PREDICTED IMPACTS CAN BE COMPARED.**

The following criteria alone or, in-combination with other criteria can be used to determine Material Damage and will be based on factors related to the use of a resource:

- Utah Department of Health Classification; waters in and adjacent to the Bear Creek mine within the San Rafael River Basin are classified as 1C -protected for domestic use with prior treatment, 3A- protected for cold water species of game fish and cold water aquatic life and, 4 - protected for agricultural uses.

- Standards of quality for waters of the State of Utah set by the Utah Department of Environmental Quality and the state Division of Water Quality, R317 (Utah Administrative Code).
- There are also primary (PDW) and secondary (SDW) drinking water standards set by the Division of Drinking Water in Rules for Public Drinking Water Systems, R309 (Utah Administrative Code).
- Water quality standards for total manganese as it relates to Post-Mining Areas, underground mine drainage after application of best practicable control technology currently available (40CFR Ch.1 Subpart 434.55).
- A change in water quality and quantity that causes irreparable damage so as to impair a use. These would be commensurate with identified land uses within and adjacent to the mine. Bear Canyon Mines proposed post mining land uses are wildlife and livestock grazing, recreation, and logging.
- Waters in boundaries of a USDA National Forest, with specific exceptions, are designated by the Utah Division of Water Quality as High Quality Waters - Category 1 and are subject to the state's anti-degradation policy. This anti-degradation policy is that waters shall be maintained at existing high quality and new point source discharges of wastewater, treated or otherwise, are prohibited (Utah Administrative Code, R317-2-3.2 and R317-2-12.1).
- The Utah Department of Environmental Quality, Division of Water Quality authorized discharge standards into surface waters under the Utah Pollutant Discharge Elimination System (UPDES).
- Diminution of flows demonstrated to be caused by mining activities that reduce a water right appropriated by the state.

#### **IV. Statement Of Findings**

No material damage from proposed mining operations associated with the tank seam amendment is expected based on the information reviewed.

DECISION NOTICE  
AND  
FINDING OF NO SIGNIFICANT IMPACT  
FOR THE READJUSTMENT OF  
FEDERAL COAL LEASE U-024316

PRICE RANGER DISTRICT  
MANTI-LASAL NATIONAL FOREST  
CARBON AND EMERY COUNTIES, UTAH

On January 13, 1986, the Forest Service received notification from the Bureau of Land Management that Federal Coal Lease U-024316 would be subject to readjustment of terms and conditions on May 1, 1988. This notification required conducting an environmental analysis of the proposed action according to the National Environmental Policy Act of 1969. A Forest Service I.D. Team met on September 3, 1986 to evaluate the proposal.


An Environmental Assessment (EA) was prepared under the direction of the Manti-LaSal National Forest Supervisor. Based on the analysis presented in this Environmental Assessment it is our decision to consent to approval of the proposed readjustment subject to the addition of Stipulations in Appendix A of the E.A. Alternative Two, as described in the E.A. is a viable alternative under the existing legislation and Forest Service policy, management decisions and direction. The No Action Alternative was evaluated and determined not to be viable as it would allow continuation of the lease under terms inconsistent with the Manti-LaSal National Forest final Environmental Statement and Land and Resource Management Plan.

This is not a major Federal action that would significantly affect the quality of the human environment; therefore, an Environmental Impact Statement is not needed. This determination was made considering the following factors:

1. No surface disturbing operations or facilities are proposed at this time. If surface disturbing operations or facilities are required in the future, a site specific environmental analysis will be prepared at that time. Additional stipulations may be specified as needed to protect the environment.
2. The identified impacts, including cumulative effects, can be effectively mitigated to an acceptable level.
3. No known prime or unique farmlands, wetlands timberland and rangelands; floodplains; alluvial valley floors; paleontological or cultural resources; nor threatened, endangered, or sensitive floral or faunal species will be impacted by readjustment of this lease.

4. Readjustment of this lease is consistent with the directions and decisions of the Manti-LaSal National Forest Final Environmental Impact Statement and the Manti-LaSal National Forest Land and Resource Management Plan 1986.

Based on this assessment and evaluation, Federal Coal Lease U-024316 should be readjusted By the Bureau of Land Management and shall include the attached stipulations. This decision is subject to administrative review (appeal) pursuant to 36 CFR 211.18, Secretary of Agriculture Appeal Regulation.

  
Regional Forester

8/6/87  
Date



ENVIRONMENTAL ASSESSMENT  
FOR THE READJUSTMENT  
FEDERAL COAL LEASE U-024316

PRICE RANGER DISTRICT  
MANTI-LASAL NATIONAL FOREST  
CARBON AND EMERY COUNTIES, UTAH

RESPONSIBLE OFFICIAL:

J. S. Tixier  
Regional Forester  
Intermountain Region (R-4)  
USDA Forest Service  
Federal Building  
324 25th Street  
Ogden, Utah 84401

FOR FURTHER INFORMATIONS CONTACT:

Reed C. Christensen  
Forest Supervisor  
Manti-LaSal National Forest  
U.S. Department of Agriculture

Ira W. Hatch  
Price Ranger District  
599 West Price River Drive  
Price, Utah 84501

Prepared by: L. Jo Ellis, Geologist

RECOMMEND APPROVAL

Ira W Hatch  
District Ranger

May 26, 1987  
Date

APPROVED

R. J. Handson  
Acting Forest Supervisor

7/6/87  
Date

## ENVIRONMENTAL ASSESSMENT

### COAL LEASE READJUSTMENT

LEASE U-024316

#### I. PURPOSE OR NEED FOR ACTION

##### A. Introduction

Federal Coal Lease U-024316, issued to the Huntington Corporation in 1958, is presently owned by C.O.P. Coal Development Company. This lease originally contained 1,800 acres, but a partial assignment of 1,400 acres was segregated on August 1, 1980. The remaining 400 acres of Federal Coal Lease U-024316 will be subject to readjustment on May 1, 1988. Coal leases issued prior to August 4, 1976 are subject to readjustment according to 43 CFR Part 3450. The initial adjustment period is at the end of the first 20 year period, and at the end of each ten year period thereafter. The subject lease is being readjusted at the end of the first ten year period in accordance with this direction.

The Bureau of Land Management (BLM) notified the Forest Service in a letter dated January 13, 1986, that the terms and conditions of Federal Coal Lease U-024316 will be subject to readjustment on May 1, 1988. As the surface land management agency for Federal Coal lease U-024316, the Manti-LaSal National Forest is responsible for conducting an environmental analysis according to the National Environmental Policy Act of 1969. The analysis will be addressed in this environmental assessment with applicable stipulations for condition of the lease readjustment.

Federal Coal Lease U-024316 encompasses 400 acres on the Price Ranger District of the Manti-LaSal National Forest. It is not presently a producing lease. The legal description is as follows (Map 1 and 2):

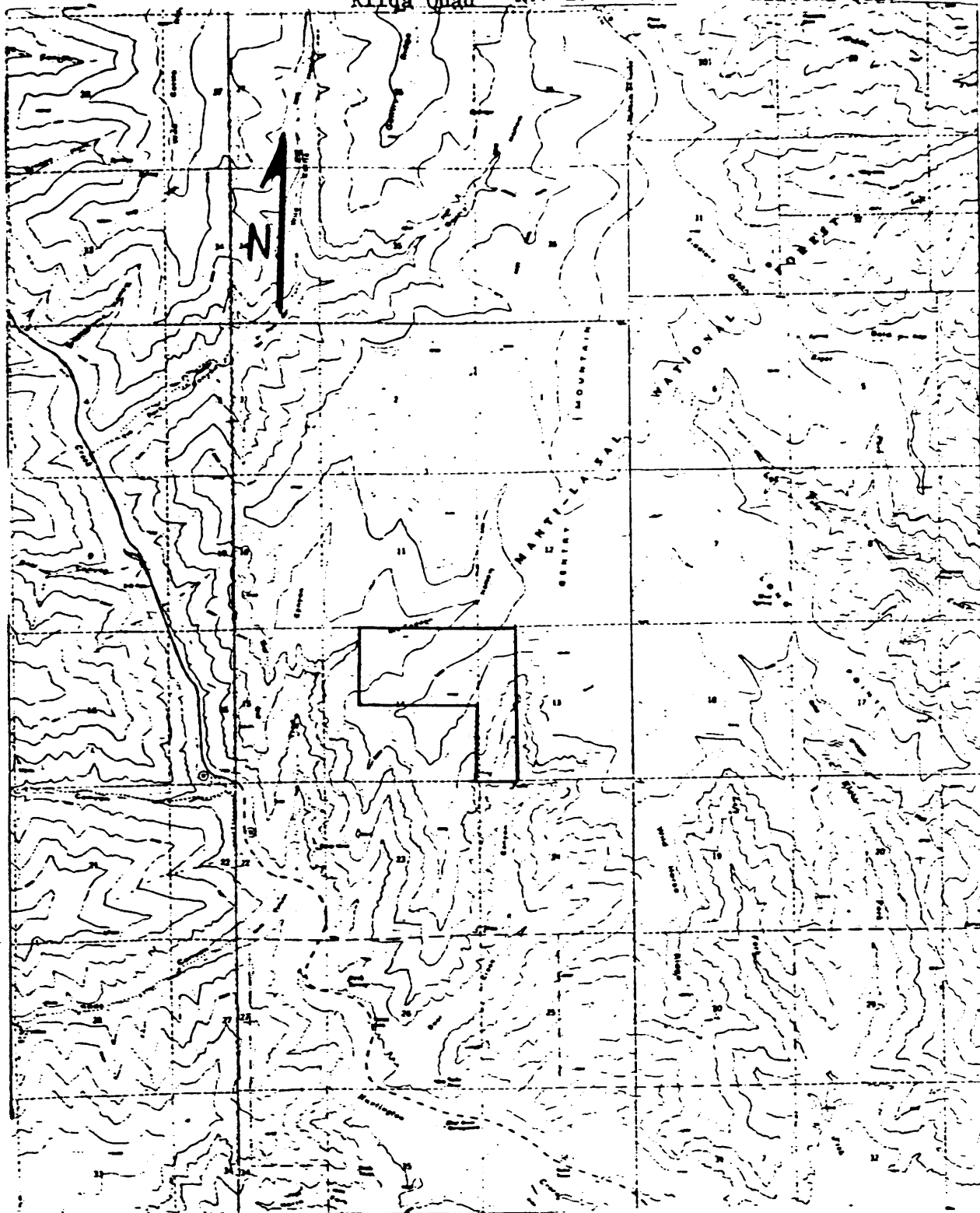
T.16S., R.7E., SLM, Emery County, Utah  
Section 13, W1/2W1/2  
Section 14, NE1/4, E1/2NW1/4

Federal Coal Lease U-024316 is located within the area covered by the Manti-LaSal National Forest Land and Resource Management Plan. The Forest Service Interdisciplinary (I.D.) Team met on September 3, 1986 to evaluate the proposal.

##### B. Authorizing Action

Leasing and development will be under the authority of the following authorizing actions: The Mineral Leasing Act of February 25, 1920, as amended; the Federal Land Policy and Management Act (FLPMA) of 1976; the Surface Mining Control and Reclamation Act (SMCRA) of 1977; the Multiple Minerals Development Act of August

Rilda Quad R.7 E. R.8 E. Hiawtha Quad



T.15 S.  
T.16 S.

Map #1 VICINITY MAP

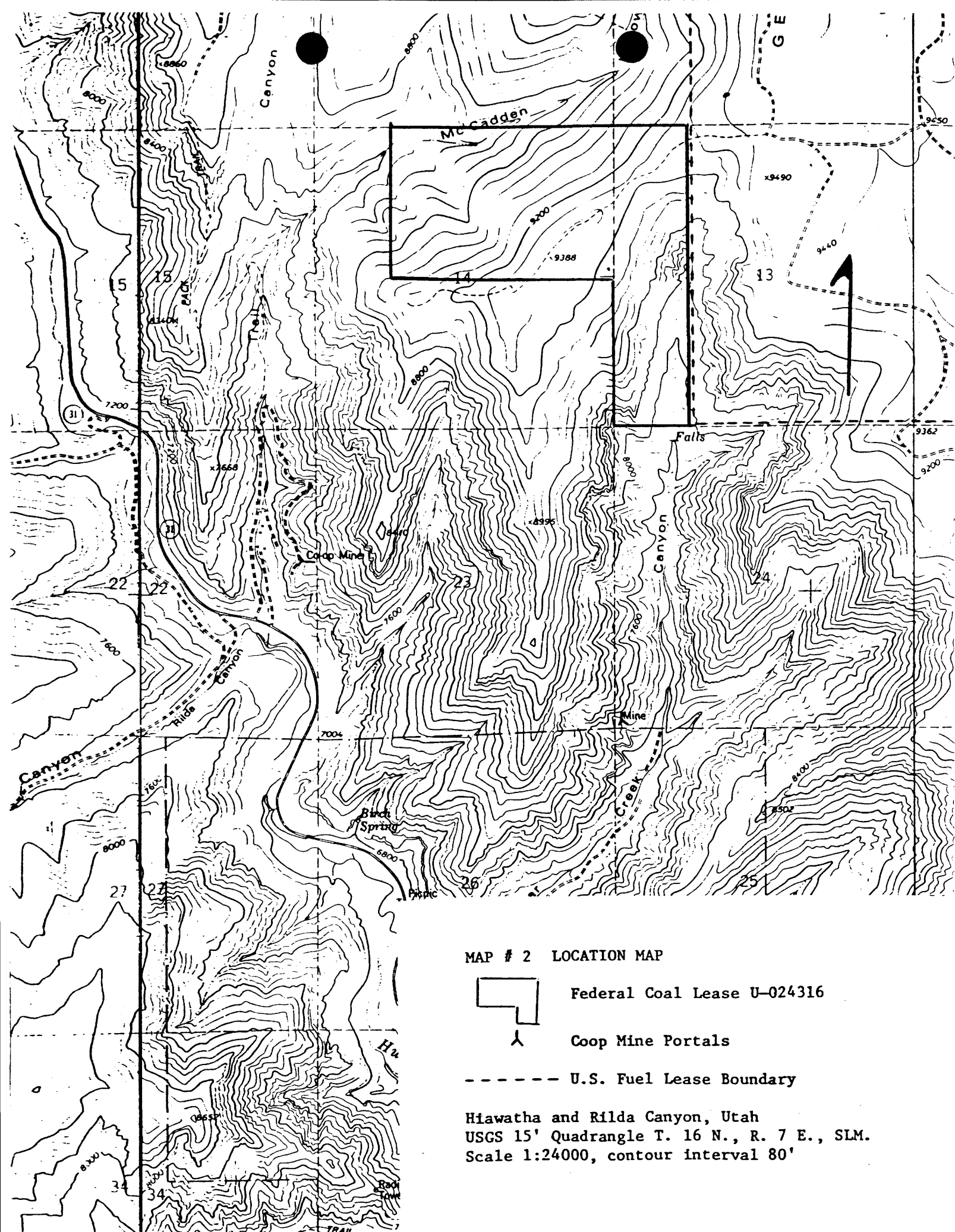


Federal Coal Lease U-024316

State Highway

Scale 1:24000

USGS 7.5 minute series



MAP # 2 LOCATION MAP



Federal Coal Lease U-024316



Coop Mine Portals

----- U.S. Fuel Lease Boundary

Hiawatha and Rilda Canyon, Utah  
USGS 15' Quadrangle T. 16 N., R. 7 E., SLM.  
Scale 1:24000, contour interval 80'

4, 1977; the National Environmental Policy Act (NEPA) of 1969; the Federal Coal Leasing Amendments Act of 1976, as amended; the Act of October 30, 1978 that further amended the Mineral Leasing Act of 1920; regulations; Title 43 CFR Group 3400, Group 2800; and Title 30 CFR 70C; and the Manti-LaSal National Forest Land and Resource Management Plan and Final Environmental Impact Statement, 1986.

C. Mine Development

No known development is proposed for Lease U-024316. The most logical approach to mining the coal in this lease appears to be through existing facilities at the Co-op Bear Canyon Mine, which are located on private land, see Map #2.

D. Issues, Concerns and Opportunities

The Forest Service ID Team identified the following concerns associated with the proposed coal lease readjustment;

1. Effects to surface and hydrologic resources due to subsidence created by underground mining of coal.
2. Effects to surface resources resulting from surface disturbing activities and facilities.

The public was informed of the proposed Federal Coal Lease readjustment in a news release October 10, 1986. The Southeastern Utah Association of Governments, the Utah State Division of Wildlife Resources and Emery County Planning and Zoning were notified by letters dated October 30, 1986 of the proposed action. No response was received from any of the parties addressed. Therefore no public issues have been identified.

An opportunity was identified by the Forest Service to readjust the terms and conditions of the existing lease to terms and conditions which would be consistent with the current laws, regulations and Manti-LaSal National Forest Land and Resource Management Plan. Stipulations in Appendix A will help mitigate the presently recognized environmental concerns.

C. Negative Declaration

The Forest Service ID Team did not identify any prime or unique farmlands, wetlands, timberlands and rangelands; floodplains; alluvial valley floors; nor threatened, endangered or sensitive floral or faunal species.

## II. PROPOSED ACTION AND ALTERNATIVES

The proposed action is to adjust the terms and conditions of Federal Coal Lease U-024316.

- A. ALTERNATIVE ONE - NO ACTION - This alternative is to take no further action to adjust the terms and conditions of coal lease U-024316. This would constitute a waiver of the right to readjust the existing coal lease. The existing lease terms and conditions would remain in effect for the next ten years.
- B. ALTERNATIVE TWO - NEW TERMS AND CONDITIONS - This alternative is to eliminate the old terms and conditions of the existing coal lease and institute new terms and conditions to be in effect for the next 10 years. Applicable Forest Service stipulations are listed in Appendix A.

### III. DESCRIPTION OF THE AFFECTED ENVIRONMENT

Coal lease U-024316 is located in Emery County, Utah within the Manti-LaSal National Forest.

#### A. Topography

Lease U-024316 is located on Gentry Mountain overlooking Huntington Canyon on the west. McCadden Hollow lies to the north. Elevations on the tract ranges from approximately 7,700 to 9,400 feet. The terrain on the slopes of Gentry Mountain is characterized by steep cliffs and deeply incised drainages. Gentry Mountain has a fairly gentle topography at the upper elevations. The majority of the lease lies on the plateau top.

Slopes within the lease range from nearly flat on the ridge top to vertical on the canyon walls. A stair-step appearance is a result of the resistant sandstone. These steps are often mantled by rock talus. The northern block of the lease lies along the plateau top, while the southeastern block lies within the steep cliff section.

Undermining the lease near areas of thin overburden, especially at outcrops, may result in escarpment failure.

#### B. Geology

Lease U-024316 is located on the Wasatch Plateau, a transitional zone between the complex Basin and Range Province to the west, and the Colorado Plateau to the east. The plateau has characteristics of both geological provinces.

The rock formations exposed on the lease, from oldest to youngest, are the Blackhawk Formation, Castlegate Sandstone, Price River Formation and North Horn Formation. These are essentially flat lying sedimentary rocks consisting of sandstone, limestone and shale. These formations display interbedding and crossbedding structures and contain lenticular sandstone lenses.

Generally the strata dip approximately 5 to 8 degrees to the west. The major regional structural feature is a horst (or

upthrown block) formed between the Joe's Valley and Pleasant Valley Fault zones. Lease U-024316 is dissected by several large faults which trend parallel to the horst boundaries N 14° W. Maximum displacement along these faults, as noted in the field, does not exceed 200 feet. Smaller faults trending parallel or perpendicular (sympathetic) to these faults also exist. Jointing patterns and topographic features, i.e., ridges, canyons, hollows, also follow the faulting patterns.

Commercial coal beds on Lease U-024316 are in the Blackhawk Formation. These beds outcrop in Bear Canyon, just south of the lease, between 7,500 and 7,700 feet above sea level. The Blackhawk has an average thickness of 900 feet on the lease. Its composition varies from sandstone, shale and coal. It contains sandstone lenses, with common fluctuation in bed thickness.

Overburden at the top of Gentry Mountain is approximately 1,600 feet thick.

Two coal seams of economic importance occur on Lease U-024316. The lower seam is the Hiawatha, lying directly above the contact of the Blackhawk and the Star Point Sandstone. According to Doelling (1972), it ranges in thickness from 6 to 8 feet. The upper seam is the Blind Canyon, which lies 90 to 100 feet above the Hiawatha. This seam varies in thickness from 6 to 10 feet.

#### C. Groundwater

Ground water surfaces as springs and seeps at elevations ranging from 7,300 to 9,200 feet. The majority of the springs and seeps occur within the Blackhawk Formation between 7,600 and 8,400 feet. Many of the springs are closely associated with lithologic contacts, where there is a change in permeability.

The Price River Formation is found between the older Castlegate Sandstone and the younger North Horn Formation. While some of the contact areas do not display any flow of water, there is notable change in soil moisture content along the upper and lower contacts of the formation which is observable by the growth of riparian vegetation.

Within the North Horn Formation there are four sizeable springs north of the lease. These occur in intermittent streams and may be related to the flow of groundwater intersecting the profile of the flow of surface water.

Faults and associated sympathetic joints may play a part in the channelization of groundwater flow. Canyons and ridges follow the trend of these faults and few springs are found along them. More frequently seep areas that are intermittent occur along these faults.

Recharge to groundwater aquifers is through precipitation mostly as snow. Due to the configuration of the ridges and canyons, the

leeward side of the ridges seem to receive the greater amounts of snow, and are more protected from melting. This increase in recharge is evidenced by the occurrence of many of the springs and seeps on the leeward side of the ridge in the general area.

Interruption, relocation or alteration of groundwater may occur as a result of development, underground mining and the subsequent subsidence if the lease is mined.

#### D. Soils

Two broad capability units were formed from the consolidation of mapping units (Map #3). This was based on their inherent characteristics and their response to management activities. Interpretations address sediment production, fertility and soil stability.

1. Capability Unit A - This unit takes in the steep canyon walls and ridges of Lease U-024316. Soils have developed from colluvial and residual parent material. Slopes face all aspects.

Soils are generally less than 20 inches deep. Textures for surface and subsurface soils are very gravelly and cobbly loams and clay loams. Coarse fragments range from 35 to 60 percent. The color of the surface soil is dark brown.

With existing use, the erosion from these soils is estimated to be one ton/ acre/ year. Using sediment yield and loss of soil productivity as criteria, this rate is considered low. Disturbance of the soils by activities that completely remove the natural protective surface cover and disrupt the natural physical condition of the soil, is estimated to increase the erosion to between 4 to 7 tons per acre. This rate is considered high. Accelerated erosion will continue at a decreasing rate over time as a protective soil cover becomes established. Since these soils have a low fertility level (due to high coarse fragments, low available water, shallow soils and low organic matter), naturally revegetating to the present vegetative state, will take many years. Special revegetative measures (topsoiling, mulching, seeding, fertilizing etc.), will decrease the time establishment. Revegetation under these practices will be expensive and still take many years. Rock fall occurs in this unit in areas where the slope is greater than 80 percent: the source being the natural disintegration of the sandstone cliffs. Soil creep occurs mainly on slopes greater than 55 percent. These are generally fine textured soils underlain by decomposed shales. Slump failures are located near the upper slopes of the units.

2. Capability Unit B - This unit consists of the plateau portion of Gentry Mountain and the gentle slopes surrounding it. The slopes generally face south. Soils were formed from



N

U-46484

U-024316

Map #3 1988 Coal Lease Readjustment  
Soil Capability Map

SOIL CAPABILITY MAP

Unit A 

Unit B 

sandstone, shale and limestone parent material. These rock types are residual and colluvial products of the North Horn Formation.

Depth of soil ranges from 20 inches to greater than 40 inches. Surface soils are loams and clay loams. Subsurface soils are clay loams and gravelly clay loams. Coarse fragment content increases to about 50 percent at the lower portion of the soil profile. The surface soil has a very dark brown color.

These soils are considered to have a moderate to high fertility. This quality means that under minimal revegetative practices (disseminating seed with no seedbed preparation), a disturbed site should have a protective cover of vegetation established within several years after a disturbance. In units where the coarse fragment content is high, more than several years should be expected for revegetation. This capability unit in its natural state, shows little sign of surface and subsurface instability. Deep disturbance will create potentially unstable slope conditions on steep slopes (greater than 55 percent), and slopes with springs or a high water table. Soil erosion at present is estimated at less than one ton per acre per year (low erosion rate). Disturbance which would result in the complete removal of the natural protective surface cover and physically disturb the soil would increase the soil loss rate to between 3 and 5 tons per/acre per/year rate. This is considered a moderate erosion rate. Accelerated erosion would continue at a declining rate for several years as a protective ground cover slowly becomes re-established. Specialized revegetation practices (fertilizing, mulching, topsoiling, seeding, seedbed preparation), would hasten the development of vegetative ground cover.

#### E. Climate

The climate of the lease tracts is generally cool and dry. Precipitation and temperature vary with elevation. Storage rain gages at similar elevations in nearby Joe's Valley average 14.6 inches per year at valley stations to 19 inches per year on ridges. Most of the precipitation, approximately two-thirds, comes in the form of snow during the months of October through April. The maximum snow accumulation occurs about the first of March each year. Snow depths average 27 inches. Snow accumulation varies considerably with local topography. The eastern sides of ridges and the north-facing slopes accumulate the most snow. South-facing slopes are snow-free for much of the winter.

The thermal characteristics vary with elevation. Mean annual temperatures vary from 43.5 degrees Fahrenheit in the bottom of Bear Canyon to 32 degrees Fahrenheit on Wild Horse Ridge. The

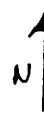
annual frost-free periods for these same sites are 100 days and 40 days respectively. Mean maximum and minimum temperatures for January are 28 degrees Fahrenheit and 18 degrees Fahrenheit respectively. July mean maximum and minimum temperatures are 84 degrees Fahrenheit and 52 degrees Fahrenheit respectively.

F. Surface Hydrology

The hydrologic properties of Lease U-024316 are highly variable. Runoff drains to the west into Huntington Canyon via Trail Canyon, McCadden Hollow, Bear Creek Canyon and west slopes of Gentry Mountain. The source and magnitude of surface runoff vary with land condition, elevation, geology, and soils. Using aerial photography to denote this variation, areas were delineated by hydrologic response groups (see Map #4). Runoff sources and potential, drainage patterns, and sediment delivery potential were evaluated. Where groups were observed to be particularly sensitive to disturbance, additional data was collected to further describe that sensitivity. The hydrologic response groups are summarized as the following:

1. Infrequent Runoff Group - This group has good to excellent ground cover. The high infiltration rates preclude surface runoff from high intensity storms. Subsurface water movement is substantial. Sediment production and transport are inhibited by the dense ground cover. Drainage patterns are weakly formed or deranged. Surface runoff that does occur is a result of snowmelt.
2. Incipient Runoff Group - This group produces small amounts of surface runoff nearly every year. High intensity storms produce overland flow. Snowmelt also produces runoff. Drainage patterns are weakly incised on side slopes, but may have deep cross-sections where rills empty into stream channels. Valley bottoms have good potential for mitigating short-term impacts, but can produce very large amounts of sediment if disturbed for a sustained period of several seasons. Sediment delivery from this group is generally high if not buffered by more restrictive conditions below it. For example, in some instances this group produces sediment that is buffered from sediment delivery by the Infrequent Runoff Group which traps most of the off-site sediment.
3. High Runoff-Flood Source Group - This group has a high runoff potential. It is further subdivided into sections A and B. Section A presents the greatest problems due to steep slopes, and sparse vegetation. Soil cover is minimal. Summer runoff may generate high flow rates. In 1976, the left fork of Bear Canyon was the source area for a mud-rock flow which caused considerable damage to the bridge below the old mine site. Much of section A has the potential to create this type of flow, and severely increase sediment production and transportation with high intensity runoff.

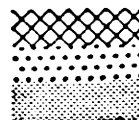
U-46484



U-024315

F MAP #4 1989 Coal Lease Readjustment  
Hydrologic Response Map

Hydrologic Response Groups  
Infrequent Runoff Group  
Incipient Runoff Group  
High Runoff-Flood Source Group



Section B has more soil and vegetation than A. Slopes are generally more stable. Runoff potential is high, but tempered by the coarser nature of the surface deposits. This material is infrequently displaced during high runoff events.

#### G. Fire

The occurrence of wildfire, either man or lightning caused, within Lease U-024316 is low. According to records kept for the last nine years, 1977 to 1986, there has been only one recorded fire in the lease area. The lease is therefore classified as low risk occurrence.

The development of portal facilities, road construction and drilling operations on the lease would increase the man-caused hazard.

#### H. Wildlife and Fish

Deer use the area of Lease U-024316 for summer and some winter range. Elk use the southern ridges for winter range.

The diversity of vegetative types on the lease supports a diverse wildlife population. Besides deer and elk, other game and furbearing species may include: black bear, cougar, bobcat, red fox, grey fox, badger, coyote, snowshoe hare, and mink. Avifauna of the area may include several species of hawk, owl, eagle, jay and sparrow. Because of the diversity of habitat components, there are probably many small mammals and songbirds found on the lease which are too numerous to list in detail in this report.

There are no fisheries within the lease area. The lease area does drain into Huntington Creek which is considered a valuable fishery.

The American Bald Eagle is the only known endangered animal species that may inhabit the area. Bald Eagles are known to winter throughout the region.

Some impacts to wildlife could result from the development of this lease due either from subsidence, from underground mining or surface activities, i.e. drilling, road construction or facilities.

#### I. Vegetation

Trees are scattered throughout Lease U-024316. The coniferous species such as Douglas fir, Englemann spruce and white fir are found primarily on the wetter sites, the north and east facing slopes. Quaking aspen grow in clones on the wetter sites that occur on the dry, high elevation south and west aspects. Bristlecone pine and limber pine grow on the higher elevations in

harsh, dry environments. Further down the slopes in the canyon and escarpment faces there is an abundance of Utah juniper and pinyon pine.

The low-laying and brushy vegetation on the dry sites consists of: sagebrush, rabbitbrush, mountain mohogany, nail wort, thistle, elk weed, wild daisy and hard grass. The moderate-to-wetter site plant communities are made up of: serviceberry, snowberry, woods rose, yarrow, pearl everlasting, locoweed, dandelion, cinquefoil, lupine, wheatgrasses, brome, needlegrass and bluegrass. These plants grow in large open expenses primarily on the south and west aspects, ridge tops and under the sparse tree stands. The Forest Botanist investigated the lease area for threatened or endangered plant species and none were found.

J. Socio-Economic

Demand for coal has decreased in the last year or two and the prediction now is for only a moderate increase over the next 10 years. Unless there is a drastic change in this situation the present conditions should remain fairly constant.

K. Historical, Archeological and Paleontological

The general area contains only a small number of known sites. There is evidence of the Fremont Culture and early Ute usage to the south and east of the lease area. Generally, the settlements were established at the lower elevations in lower Huntington Canyon.

Lease U-024316 is considered to be an unsuitable location for archeological sites, although some of the major ridges and drainages were probably used for travelways.

Data is not available on the presence or absence of artifacts within the leasehold. Before any surface disturbing activity can be approved, site specific examination by qualified and designated individuals will be necessary.

Fossils occur on the lease, but none are found to be of significant paleontologic value.

L. Timber Management

There has been timber sale activity on the lease area in the past and some recent cutting of timber and poles. There are plans for harvesting more timber from the area covered by the lease. Merchantable timber includes Douglas fir, Engelmann spruce and white fir.

#### M. Range Management

Coal lease U-024317 is located within the Gentry Mountain Cattle and Horse Allotment. There are 1440 head of cattle that graze this area of the allotment. Use in the lease area is generally very low (0% - 5%).

Nearly all of the range within the lease is classified as unsuitable or non-rangeland due to steep sideslopes, stands of heavy timber, barren slopes and rock outcrops. Approximately 25 acres in the lease is classified as suitable sagebrush range. This is the only suitable range within the lease area, see Map #5.

There are no range improvements located within the lease area.

Mining and exploration of these leases should have little effect on range management of the area. Subsidence could affect springs in the surrounding area.

#### IV. ENVIRONMENTAL CONSEQUENCES

This section describes the environmental consequences of each alternative.

##### A. ALTERNATIVE ONE - NO ACTION

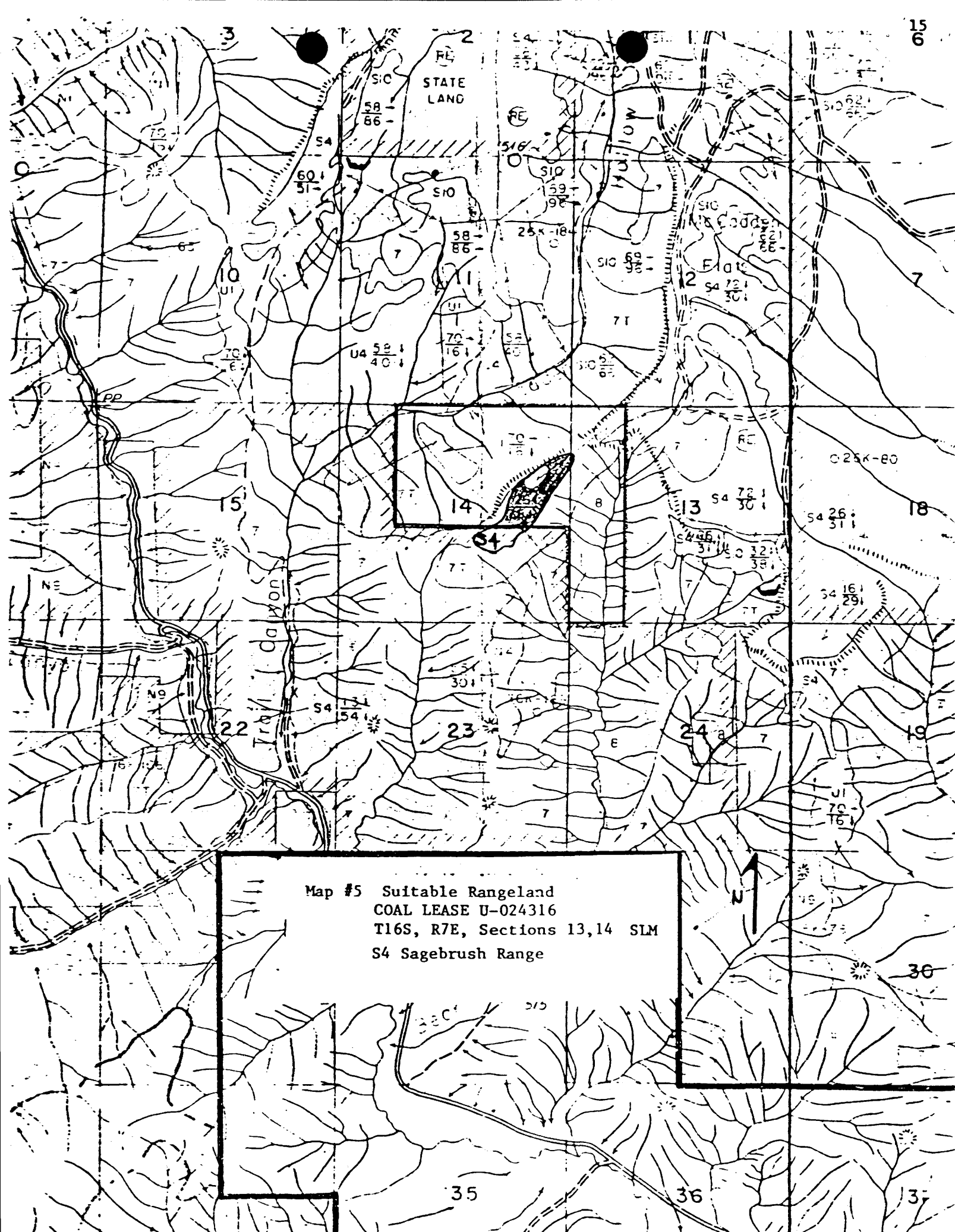
This is not considered a viable alternative due to the decisions made in the Manti-LaSal National Forest Land and Resource Management Plan. The Forest Plan <sup>Provides</sup> ~~has made the determination~~ <sup>directions</sup> as to the stipulations which are necessary for coal leases. The present lease terms are not consistent with the Plan.

##### B. ALTERNATIVE TWO - NEW TERMS AND CONDITIONS

###### Short-Term and Residual Impacts

There should be no short-term and residual impacts related to the readjustment of coal lease U-024316. Terms and conditions listed in Appendix A should help mitigate short-term impacts and minimize residual impacts if coal is mined from this lease. If surface facilities are required for coal production, a site specific analysis and environmental assessment or environmental impact statement would be prepared. Additional stipulations would be required at that time.

Residual impacts which will occur are related to subsidence due to underground mining of coal. There will be changes to the topography and hydrology of the area. Subsidence may decrease surface water or change the location of springs and seeps. These changes will effect the vegetation and therefore the wildlife habitat and range.



Map #5 Suitable Rangeland  
COAL LEASE U-024316  
T16S, R7E, Sections 13,14 SLM  
S4 Sagebrush Range



### Short-Term and Long-Term Productivity

There will be no long-term changes to the productivity of the area due to the readjustment of this lease. If coal is mined from the lease there will be some impacts to the productivity as a result of subsidence and changes to the hydrology. Changes may include a shift in plant communities as surface water decreases or is relocated.

### Irreversible and Irretrievable Commitments

There are no irreversible or irretrievable commitments of resources associated with the readjustment of coal lease U-024316. Mining of the coal would be an irreversible commitment of a mineral resource. Subsidence is also an irreversible commitment. Irreversible and irretrievable commitments associated with construction of surface facilities would be evaluated at the time such a proposal was presented.

## **V. CUMULATIVE EFFECTS**

There are no cumulative effects associated with the readjustment of this lease. Cumulative effects resulting from mining coal would include; increased subsidence which is effecting surrounding mined areas; changes in the area water quality; and changes to the hydrologic character of the area already impacted by mining, and additional mine and transportation facilities.

## **VI. PERSONNEL AND ORGANIZATIONS CONTACTED**

### **A. Forest Service I.D. Team and Consultants**

Jo Ellis	Geologist	Team Leader
Ira W. Hatch	District Ranger	Team Member
Leland Matheson	Range Conservation	" "
Gary Say	Timber/Recreation	" "
Walt Nowak	Geologist	Consultant
W.H. Boley	Forest Engineer	Team Member
Dan Larsen	Soil Scientist	" "
Dennis Kelly	Hydrologist	" "
Jim Jensen	Landscape Architect	" "
Bob Thompson	T. & E. Specialist	" "
Lee Foster	NEPA Coordinator	" "
Carter Reed	Geologist(SO Coordinator)	Consultant

### **B. Other Organizations Contacted**

Southeastern Association of Governments

Utah Division of Wildlife Resources

Emery County Planning and Zoning

VII SELECTED REFERENCES

- #1 Manti-LaSal National Forest Environmental Impact Statement and Manti-LaSal National Forest Land and Resource Management Plan.
- #2 Environmental Assessment/ Technical Examination, Readjustment of Federal Coal Lease U-024316, U-024318, U-020668, 1979.

### SPECIAL STIPULATIONS

Federal Regulations 43 CFR 3400 pertaining to Coal Management make provisions for the Surface Management Agency, the surface of which is under the jurisdiction of any Federal agency other than the Department of Interior, to consent to leasing and to prescribe conditions to insure the use and protection of the lands. All or part of this lease contain lands the surface of which are managed by the United States Department of Agriculture, Forest Service - Manti-LaSal National Forest.

The following stipulations pertain to the Lessee responsibility for mining operations on the lease area and on adjacent areas as may be specifically designated on National Forest System lands.

#### Forest Service Stipulation #1.

Before undertaking activities that may disturb the surface of previously undisturbed leased lands, the Lessee may be required to conduct a cultural resource inventory and a paleontological appraisal of the areas to be disturbed. These studies shall be conducted by qualified professional cultural resource specialists or qualified paleontologists, as appropriate, and a report prepared itemizing the findings. A plan will then be submitted making recommendations for the protection of, or measures to be taken to mitigate impacts for identified cultural or paleontological resources.

If cultural resources or paleontological remains (fossils) of significant scientific interest are discovered during operations under this lease, the Lessee prior to disturbance shall immediately bring them to the attention of the appropriate authority. Paleontological remains of significant scientific interest do not include leaves, ferns or dinosaur tracks commonly encountered during underground mining operations.

The cost of conducting the inventory, preparing reports, and carrying out mitigating measures shall be borne by the Lessee.

#### Forest Service Stipulation #2.

If there is reason to believe that threatened or endangered (T&E) species of plants or animals, or migratory bird species of high Federal interest occur in the area, the Lessee shall be required to conduct an intensive field inventory of the area to be disturbed and/or impacted. The inventory shall be conducted by a qualified specialist and a report of findings will be prepared. A plan will be prepared making recommendations for the protection of these species or action necessary to mitigate the disturbance.

The cost of conducting the inventory, preparing reports and carrying out mitigating measures shall be borne by the Lessee.

Forest Service Stipulation #3.

The Lessee shall be required to perform a study to secure adequate baseline data to quantify the existing surface resources on and adjacent to the lease area. Existing data may be used if such data is adequate for the intended purposes. The study shall be adequate to locate, quantify, and demonstrate the inter-relationship of the geology, topography, surface hydrology, vegetation and wildlife. Baseline data will be established so that future programs of observation can be incorporated at regular intervals for comparison.

Forest Service Stipulation #4.

Powerlines used in conjunction with the mining of coal from this lease shall be constructed so as to provide adequate protection for raptors and other large birds. When feasible, powerlines will be located at least 100 yards from public roads.

Forest Service Stipulation #5.

The limited area available for mine facilities at the coal outcrop, steep topography, adverse winter weather, and physical limitations on the size and design of the access road, are factors which will determine the ultimate size of the surface area utilized for the mine. A site specific environmental analysis will be prepared for each new mine site development and for major improvements to existing developments to examine alternatives and mitigate conflicts.

Forest Service Stipulation #6.

The Lessee shall be required to establish a monitoring system to locate, measure and quantify the progressive and final effects of underground mining activities on the topographic surface, underground and surface hydrology and vegetation. The monitoring system shall utilize techniques which will provide a continuing record of change over time and an analytical method for location and measurement of a number of points over the lease area. The monitoring shall incorporate and be an extension of the baseline data.

Forest Service Stipulation #7.

The Lessee shall provide for the suppression and control of fugitive dust on haul roads and at coal handling and storage facilities. On Forest Development Roads (FDR), Lessees may perform their share of road maintenance by a commensurate share agreement if a significant degree of traffic is generated that is not related to their activities.

Forest Service Stipulation #8.

Except at specifically approved locations, underground mining operations shall be conducted in such a manner so as to prevent surface subsidence that would: (1) cause the creation of hazardous conditions such as potential escarpment failure and landslides, (2) cause damage to existing surface structures, and (3) damage or alter the flow of perennial streams. The Lessee shall provide specific measures for the protection of escarpments, and determine corrective measures to assure that hazardous conditions are not created.

Forest Service Stipulation #9.

In order to avoid surface disturbance on steep canyon slopes and to preclude the need for surface access, all surface breakouts for ventilation tunnels shall be constructed from inside the mine, except at specific approved locations.

Forest Service Stipulation #10.

The coal contained within, and authorized for mining under this lease shall be extracted only by underground mining methods.

Forest Service Stipulation #11.

Existing Forest Service owned or permitted surface improvements will need to be protected, restored, or replaced to provide for the continuance of current land uses.

Forest Service Stipulation #12.

In order to protect big game wintering areas, elk calving and deer fawning areas, sagegrouse strutting areas, and other critical wildlife habitat and/or activities, specific surface uses outside the mine development area may be curtailed during specified periods of the year.

Forest Service Stipulation #13.

Support facilities, structures, equipment, and similar developments will be removed from the lease area within two years after the final termination of use of such facilities. This provision shall apply unless the requirement of Section 10 of the lease is applicable. Disturbed areas and those areas previously occupied by such facilities will be stabilized and rehabilitated, drainages re-established, and the areas returned to a premining land use.

Forest Service Stipulation #14.

The Lessee, at the conclusion of the mining operation, or at other times as surface disturbance related to mining may occur, will replace all damaged, disturbed or displaced corner monuments (section corners, 1/4 corners, etc.) their accessories and appendages (witness trees, bearing trees, etc.) or restore them to their original condition and location, or at other locations that meet the requirements of the rectangular surveying system. This work shall be conducted at the expense of the Lessee, by a professional land surveyor registered in the State of Utah, and to the standards and guidelines found in the Manual of Surveying Instructions, United States Department of the Interior.

Forest Service Stipulation #15.

The Lessees, at their expense, will be responsible to replace any surface water identified for protection, that may be lost or adversely affected by mining operations, with water from an alternate source in sufficient quantity and quality to maintain existing riparian habitat, fishery habitat, livestock and wildlife use, or other land uses.

STIPULATION FOR LANDS OF THE NATIONAL FOREST SYSTEM  
UNDER JURISDICTION OF  
DEPARTMENT OF AGRICULTURE

The licensee/permittee/lessee must comply with all the rules and regulations of the Secretary of Agriculture set forth at Title 36, Chapter II, of the Code of Federal Regulations governing the use and management of the National Forest System (NFS) when not inconsistent with the rights granted by the Secretary of the Interior in the license/prospecting permit/lease. The Secretary of Agriculture's rules and regulations must be complied with for (1) all use and occupancy of the NFS prior to approval of a permit/operation plan by the Secretary of the Interior, (2) uses of all existing improvements, such as Forest development roads, within and outside the area licensed, permitted or leased by the Secretary of the Interior, and (3) use and occupancy of the NFS not authorized by a permit/operating plan approved by the Secretary of the Interior.

All matters related to this stipulation are to be addressed

to Manti-LaSal National Forest  
Price Ranger District  
at 599 W. Price River Drive  
Price, Utah 84501  
Telephone No.: 801-637-2817

who is authorized representative of the Secretary of Agriculture.



## United States Department of the Interior

## BUREAU OF LAND MANAGEMENT

Price Field Office  
125 South 600 West  
Price, Utah 84501

3482  
U-024316  
(UT-066)

Pamela Grubaugh-Littig  
Permit Supervisor  
State of Utah  
Division of Oil, Gas and Mining  
1594 West North Temple Street, Suite 1210  
Salt Lake City, Utah 84114-5801

FEB 10 1997

Re: Mine Plan Amendment, Federal Lease U-024316 Tank Seam Addition, Co-op Mining  
Company, Bear Creek Canyon Mine, ACT/015/025

Dear Ms. Grubaugh-Littig:

#2 Copy Pam: Baron

We have received the subject mine plan amendment and have reviewed the resource recovery and protection (R2P2) portion of the plan for compliance with the mineral leasing laws and regulations. In addition, we have evaluated the pillar stability contained in the mining plan as to possible subsidence concerns as expressed by the Manti-LaSal National Forest. Our comments follow:

In 1989, Co-op applied to add Federal coal leases U-024316 and U-024318 to the Bear Creek Canyon Mine Permit. We sent our recommendation for approval of the R2P2 in July of 1990. The approval was for mining of two seams of coal (the upper Blind Canyon and the lower Hiawatha seams) north from the existing mine on fee coal. Permit issuance was delayed because of various issues. As Co-op mined north in the Blind Canyon Seam and approached lease U-024316, coal thicknesses decreased rapidly down to less than minable height. Exploration holes drilled later determined no Blind Canyon Seam coal of minable thickness in the lease. However, this and other exploration holes showed minable coal in a third seam above the Blind Canyon Seam, named the Tank Seam. Co-op has been mining in the Tank Seam in the fee property to the south and now wants to extend mining into U-024316.

We have reviewed the amended mine plan for compliance with the mineral leasing regulations and the lease terms and conditions. The plan for the Tank Seam shows a logical approach to mine the reserves by room-and-pillar methods with continuous miners. Much of the northern portion of the lease has low coal and no mining is anticipated in the Tank Seam in the northern end of the lease. Most of the minable coal in the lease is in the southwest portion of the lease and Co-op has an adequate plan to mine the recoverable reserves. Another purpose of mining on the lease in the Tank Seam is to provide access to reserves on the other side of the Bear Canyon Fault. Co-op plans to mine a set of main entries north along the outcrop of the west side of Bear Creek Canyon. These mains are situated in a small fault graben that is sympathetic to the large Bear Canyon Fault which forms the canyon. The mains will be used as an access route for the coal on the east side of the Bear Canyon Fault as Co-op has plans to cross the Bear Canyon Fault in the Tank Seam and ramp down to the Hiawatha Seam on the other side of the



fault. These main entries are critical to the access of additional coal to the north and east. They also run under the escarpment of the west side of Bear Creek Canyon. As per the lease stipulations, the BLM has analyzed these main entries for stability to protect the escarpment from subsidence-induced failure. The following is our stability analysis:

Co-op plans to mine five main entries north/north-east into Federal coal lease U-024316 in the Tank Seam. These entries would be mined between the outcrop to the east and a sympathetic fault to the west which separates this main entry access corridor from the main mining panels to the west. These entries would be under the west escarpment of Bear Creek Canyon. The design of the entries and pillars are for long-term use with dimensions of 60- x 60-foot pillars and we find they will be stable as verified.

We have used an excepted methodology to substantiate that these pillars will remain stable and that no subsidence should take place under the escarpment which would satisfy the special lease stipulation. From Rock Mechanics and the Design of Structures in Rock, by Obert and Duvall, a design equation for the average pillar stress is:

$$S_p = \frac{S_v}{1-R_a}$$

$S_p$  = average pillar stress (lbs./sq. in.)  
 $S_v$  = average vertical stress (lbs./sq. in.)  
 $R_a$  = recovery rate (%)

An estimation of the vertical stress has been shown to approximate the gravitational force on the amount of rock above the opening. Hence:

$$S_v = T h + 144 \text{ sq. in./sq. ft.}$$

$T$  = density of the overburden (lbs./cu. ft.)  
 $h$  = height of overburden (ft.)

This assumption is accepted by industry and rock mechanic experts, though exact vertical stresses are complex due to changes in geologic structures. For simplicity, the density of the overburden is 160 lbs./cu. ft., which is a reasonable average of the various rock (sandstones and shales) strata above. Hence, the vertical stress is nearly a direct relationship to the amount of overburden. The overburden in the area of question ranges from 400 feet in the south to 1000 feet in the north. Using a 44 percent recovery rate for the proposed entry and pillar design (60- x 60-foot pillars on 80-foot crosscut and entry centers), the stress on the pillars ( $S_p$ ) will range from about 800 to 2000 psi.

The strength of the pillar to resist the vertical stresses can be estimated by compressive tests on the core samples of the coal. The Tank Seam has been tested at about 3,500 psi. If the vertical stress on the pillar is greater than the strength of the pillar, failure will occur. Hence:

$$F = \frac{C_p}{S_p}$$

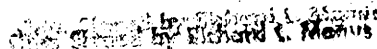
F = factor of safety  
Cp = strength of the pillar  
Sp = vertical pillar stress

Factors of safety greater than 1 will reflect stability. We calculate a safety factor for the proposed main entry pillars under the Bear Creek Canyon escarpment to range from 1.8 to 4.4. This substantiates the assertions of Co-op that the pillars will remain intact and no subsidence under the escarpment will occur. This is in harmony with known observations and experiences in this coal region. This pillar plan is a standard design used in many main entries and has stood over time. We know of no instances where main entries with these dimensions have failed.

In summary, Co-op's mining plan will not affect the escarpment along the west side of Bear Creek Canyon and the pillars will remain stable. The mining plan to add Federal coal lease U-024316 to the existing Bear Creek Canyon Mine Permit meets the requirements of the Mineral Leasing Act of 1920, as amended, the regulations at 43 CFR 3480, the lease terms and conditions, and will achieve maximum economic recovery of the Federal coal. We recommend the R2P2 be approved and the permit issued.

If you have any questions or need further information, please contact Stephen Falk of my staff at 636-3600.

Sincerely,

by Richard L. Manus

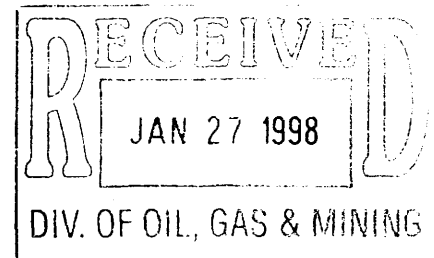
Richard L. Manus  
Field Manager

cc: UT-921, Utah State Office  
Manti-LaSal National Forest  
599 West Price River Drive  
Price, Utah 84501  
Office of Surface Mining  
1999 Broadway, Suite 3320  
Denver, Colorado 80202-5733



United States Department of the Interior  
FISH AND WILDLIFE SERVICE

UTAH FIELD OFFICE  
LINCOLN PLAZA  
145 EAST 1300 SOUTH, SUITE 404  
SALT LAKE CITY, UTAH 84115



In Reply Refer To

(CO/KS/NE/UT)

January 16, 1998

Pamela Grubaugh-Littig  
Permit Supervisor  
Department of Natural Resources  
Division of Oil, Gas and Mining  
1594 West North Temple, Suite 1210  
Box 145801  
Salt Lake City, UT 84114-5801

RE: Federal Lease U-024316, Application for Mining the Tank Seam, Co-Op Mining  
Company, Bear Canyon Mine, ACR/015/025-97-1, Emery County, Utah

*Folder #2*  
*Copy [initials]*

Dear Ms. Grubaugh-Littig:

In response to your letter of April 1, 1997, the U.S. Fish and Wildlife Service concurs with the proposed modification to include mining of the Tank Seam in federal lease U-024316. Comments on the permit application were submitted in a letter dated April 23, 1997, however we did not include a concurrence to include the Tank Seam in the federal lease. We apologize for any inconvenience this may have caused.

Sincerely,

*[Signature]*  
for Reed E. Harris  
Utah Field Supervisor



# State of Utah

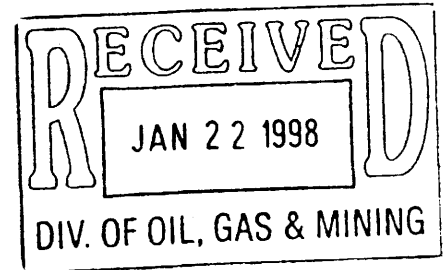
Department of Community & Economic Development  
Division of State History  
Utah State Historical Society



Michael O. Leavitt  
Governor  
Max J. Evans  
Director

300 Rio Grande  
Salt Lake City, Utah 84101-1182  
(801) 533-3500 • FAX: 533-3503 • TDD: 533-3502  
ushs@history.state.ut.us

January 20, 1998



Pamela Grubaugh-Littig  
Permit Supervisor  
Division of Oil, Gas and Mining  
P. O. Box 145801  
Salt Lake City UT 84114-5801

## BUILDING MAIL

RE: Federal Lease U-924316, ACT/015/025-97-1 Bear Canyon Mine, Emery County, Utah

In Reply Please Refer to Case No. 95-0996

Dear Pam:

The Utah State Historic Preservation Office received the above referenced request on January 14, 1998. After review of the material provided, the Utah Preservation Office recommends that there would be **No Effect** upon cultural resources by the project.

This information is provided on request to assist DOGM with its Section 106 responsibilities as specified in §36CFR800. If you have questions, please contact me at (801) 533-3555, or Barbara L. Murphy at (801) 533-3563. My email address is: [jdykman@history.state.ut.us](mailto:jdykman@history.state.ut.us)

As ever,

James L. Dykmann  
Compliance Archaeologist

JLD:95-0996 OSM/NE

F:\CULTURAL\JIM\95-0996.wpd

United States  
Department of  
Agriculture

Forest  
Service

Manti-La Sal  
National Forest

599 West Price River Dr.  
Price, Utah 84501  
Phone # (435) 637-2817  
Fax # (435) 637-4940

File Code: 2820-4

Date: February 10, 1998

Ms. Pamela Grubaugh-Littig  
Utah Division of Oil, Gas and Mining  
1594 West North Temple, Suite 1210  
Box 145801  
Salt Lake City, UT 84114-5801

Re: Federal Lease U-024316, Application for Mining the Tank Seam, Co-Op Mining Company, Bear Canyon Mine, ACT/015/025-97-1, Emery County, Utah

Dear Pam:

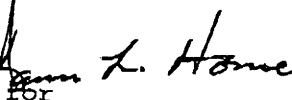
We reviewed Co-Op Mining Company's application for mining the Tank seam and the deficiencies previously identified by the Manti-La Sal National Forest have been adequately addressed. The mine permit application package complies with the terms, conditions, and stipulations contained in the federal lease. This letter will serve as our consent/concurrence to the Mining and Reclamation Plan for mining in the Tank seam.

Our concurrence is conditioned on there being no escarpment failures. It is understood that under the current plan, only first mining (mains) will occur under escarpments in the federal lease area.

At the time of lease relinquishment, Co-Op will need to demonstrate that no disturbance to surface resources has occurred, therefore, we request that copies of the annual subsidence and hydrologic reports be sent to us. In addition, a final report on subsidence and surface resources will be required prior to Forest Service consent to lease relinquishment.

If you need further information, please contact Carter Reed or Liane Mattson at (435) 637-2817.

Sincerely,

  
FOR

JANETTE S. KAISER  
Forest Supervisor

cc:

Richard Manus, BLM, Price River/San Rafael Resource Area  
Ron Singh, OSM Denver  
Charles Reynolds, Co-Op Mining Company  
D-2/3

Bureau of Land Management  
Utah State Office  
University Club Building  
138 East South Temple  
Salt Lake City, Utah 84111

3453  
U-024316  
U-024318  
(U-942)

AUG 21 1980

CERTIFIED MAIL

DECISION

C.O.P. Coal Development Company	:	Coal
53 West Angelo Avenue	:	U-024316
Salt Lake City, Utah 84115	:	U-024318
	:	

Assignments Approved  
Bond Accepted

On April 25, 1980, Assignments of Coal leases U-024316 and U-024318, entered into on April 1, 1980 between Peabody Coal Company, as assignor, and C.O.P. Coal Development Company, as assignee, were filed in this office.

Satisfactory evidence of the qualifications and holdings of C.O.P. Coal Development Company has been filed and the lease accounts are in good standing. The assignments appear to meet the requirements of the regulations and are hereby approved effective September 1, 1980. Approval of the assignments does not constitute approval of any of the terms therein which may be in violation of the lease terms.

As required by the regulations in 43 CFR 3472.2(a), a Personal Bond and Power of Attorney, secured by \$5,000 cash, was filed in this office on August 20, 1980, for each coal lease. The bonds are satisfactory and are accepted effective August 20, 1980.

/s/ L. Pollick

Chief, Minerals Section

cc: Area Mining Supervisor  
Geological Survey

*C.C. Denver*

*Rec'd U.S. B.L.*  
**AUG 25 1980**  
*mining*



State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt  
Governor  
Ted Stewart  
Executive Director  
Lowell P. Braxton  
Division Director

1594 West North Temple, Suite 1210  
PO Box 145801  
Salt Lake City, Utah 84114-5801  
801-538-5340  
801-359-3940 (Fax)  
801-538-7223 (TDD)

February 2, 1998

To: File

From: Pamela Grubaugh-Littig, Permit Supervisor *PGL*

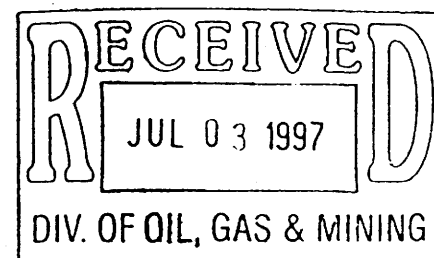
Re: 510 (c) Recommendation for Significant Revision, Mining the Tank Seam in Federal Lease U-024316, Bear Canyon Mine, Co-Op Mining Company, ACT/015/025, Folder #5, Emery County, Utah

As of this writing of this memo, there are no NOVs or COs which are not corrected or in the process of being corrected for the Bear Canyon Mine. There are no finalized civil penalties which are outstanding and overdue in the name of Co-Op Mining Company. Co-Op Mining Company, does not have a demonstrated pattern of willful violations, nor have they been subject to any bond forfeitures for any operation in the state of Utah.

Attached is an OSM recommendation from the Applicant Violator System with an issue recommendation for the Bear Canyon Mine for this permitting action.

O:\015025.BCN\FINALVAVS.WPD

ACT/015/025 #



*Copy Daron, Mayli  
(M. S. S. S.)*

JEFFREY W. APPEL (3630)  
BENJAMIN T. WILSON (5823)  
W. HERBERT McHARG (7573)  
APPEL & WARLAUMONT, L.C.  
1100 Boston Building  
9 Exchange Place  
Salt Lake City, Utah 84111  
Telephone: (801) 532-1252

Attorneys for Castle Valley  
Special Service District

J. CRAIG SMITH (4143)  
DAVID B. HARTVIGSEN (5390)  
NIELSEN & SENIOR, P.C.  
1100 Eagle Gate Tower  
60 East South Temple  
Salt Lake City, Utah 84111  
Telephone: (801) 532-1900

Attorneys for North Emery Water Users Association  
and Huntington-Cleveland Irrigation Company

IN AND BEFORE THE UTAH STATE DIVISION  
OF OIL, GAS, AND MINING

In the Matter of the	)	Water User's Objections to
Application of Co-Op Mining	)	Co-Op's Application to Expand
Company to Expand Mining	)	Mining Into Tank Seam and
in the Tank Seam at the Bear	)	Request for Informal Conference
Canyon Mine, Permit No. ACT/	)	
015/025, U-024316	)	

Objectors, Huntington-Cleveland Irrigation Company, North Emery Water Users Association and Castle Valley Special Service District (collectively "Water Users"), by and through their counsel of record, hereby submit this Objection to Co-Op's Application to Expand Mining in the Tank Seam at the Bear Canyon Mine, Permit Number ACT/015/025, U-024316, issued November 1, 1985.



The grounds for the Objection are as follows:

1. Water Users are a Special Service District, a non-profit water users association and a mutual irrigation company. Each either holds water rights in or has the right to use water from Birch Spring, Big Bear Spring, or both ("springs"). These springs are the primary culinary water sources for approximately 2,650 residents of northern Emery County, Utah, and are located adjacent to and down-gradient from the operations of C.W. Mining Company d/b/a Co-Op Mining Company's ("Co-Op") Bear Canyon #2 Coal Mine.

2. Co-Op intends to expand its mining operations to the north in the Tank Seam at the Bear Canyon #2 Mine. The expansion area is approximately 400 acres, and is anticipated to increase production from an approved amount of 200,000 to 750,000 tons. Application to Expand at 3-28. This represents a significant revision, subject to the mandates of R645-303-224.100.

3. Water Users are concerned that Co-Op's proposed expansion will have an adverse impact upon by diminishing water quantity or quality of the springs and the aquifers feeding the springs.

4. Water Users believe that Co-Op's proposed expansion may harm their vested water rights that represent critical and irreplaceable sources of water for several adjacent towns and communities.

5. As recognized by Co-Op, increased water flows have been encountered as mining operations proceed northward. In this application, Co-op changed its prior position with respect to the

hydrologic data submitted as part of its prior permit application and upon which its permit was granted. Co-Op initially explained the source of this water as a "perched aquifer." Since that time, a new theory of hydrology was enunciated by Co-op's new consultant--Alan Mayo, and is relied on in this current application. Co-Op's application explains that the "apparent source of this water" is a "significant channel sandstone, which traverses East-West along the North end of the mine." App. at 7-17; 2-7. This theory is totally new and at variance with the hydrologic information previously submitted by Co-op as part of its permit application and relied upon by the Division in issuing the current permit.

Although Co-Op contends in this application that "[m]ining in the Tank Seam has not encountered a similar channel or water inflows" App. at 2-7, Co-Op admits that "[t]he exact dimensions and configuration of this channel is unknown." App. at 7-17.

6. The Probable Hydrologic Consequences ("PHC") does not adequately address this potential "channel sandstone" source, nor the impacts of dewatering this source on the springs. A permit to mine coal may only be issued upon submission of specific information in the form of a Permit Application. See R645-300-112.400. Co-Op's PHC does not provide specific hydrologic information as set forth in R645-301-700, et seq., and contains numerous false and inaccurate statements.

7. The CHIA prepared by the Division is based on the PHC. Therefore, because Co-Op now admits the PHC does not adequately

describe the hydrologic condition of the permit area and does not address the hydrologic consequences of expanding mining north in the Tank Seam, the CHIA is inaccurate. Many of Objector's concerns relating to the adequacy of the PHC and CHIA are the subject of current informal administrative proceedings before the Division. See attached OBJECTOR'S JOINT POST INFORMAL CONFERENCE MEMORANDUM AND CLOSING ARGUMENT, Docket No. 95-025; Cause No. ACT/015/025, dated May 8, 1997.

8. As recognized by Co-Op, the "[c]urrent permit application will allow for mining of Lease U-024316 in the Tank Seam only [not Blind Canyon or Hiawatha] until additional hydrologic and geologic information can be obtained." App. at 3-27. Much of this hydrologic and geologic information relates to the encountering of water as mining proceeds north. Thus, expanding mining north in the Tank Seam should not be allowed either until additional hydrologic and geologic information has been obtained and addressed in the PHC and CHIA.

9. As noted above, some of this information is currently the subject of administrative proceedings regarding permit renewal for Co-Op's operations in the Blind Canyon Seam and the Tank Seam. Also, Genwal and the Forest Service are preparing an environmental assessment of Co-Op's proposed mining operations in this general area. Water Users believe that the conclusions reached and information generated by these proceedings and in the Genwal environmental assessment will greatly benefit the Division's

ability to determine whether to allow Co-Op to expand mining operations in the Tank Seam.

WHEREFORE, Water Users request that Co-Op's application to expand its coal mining activities in the Tank Seam at the Bear Canyon Mine, Permit No. ACT/015/025, be rejected and that Water Users be entitled to participate in an informal conference on the matter.

Water Users further request that they be kept apprised of all current or proposed Co-Op mining operations that may impact the quality and/or quantity of its water sources.

DATED this 21 day of July, 1997.

APPEL & WARLAUMONT

By *Jeffrey W. Appel*  
JEFFREY W. APPEL  
BENJAMIN T. WILSON  
W. HERBERT MCHARG  
Attorneys for Castle Valley  
Special Service District

NIELSEN & SENIOR

By *J. Craig Smith*  
J. CRAIG SMITH  
DAVID B. HARTVIGSEN  
Attorneys for North Emery  
Water Users Association  
and Huntington-Cleveland  
Irrigation Company



State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt  
Governor

Ted Stewart  
Executive Director

James W. Carter  
Division Director

1594 West North Temple, Suite 1210  
Box 145801  
Salt Lake City, Utah 84114-5801  
801-538-5340  
801-359-3940 (Fax)  
801-538-7223 (TDD)

July 25, 1997

Jeffrey W. Appel  
Appel & Warlaumont, L.C.  
1100 Boston Building  
9 Exchange Place  
Salt Lake City, Utah 84111

J. Craig Smith  
David B. Hartvigsen  
Nielsen & Senior, P.C.  
1100 Eagle Gate Tower  
60 East South Temple  
Salt Lake City, Utah 84111

Re: Water User's Objections to Co-Op's Application to Expand Mining into Tank Seam and Request for Informal Conference, Bear Canyon Mine, Co-Op Mining Company, ACT/015/025, File Folder #3, Emery County, Utah

Dear Mr. Appel and Mr. Smith:

This letter is written in response to your request, received on July 3, 1997, for an informal conference as noted above. I have reviewed your request and find that no new issues of substance have been raised concerning this issue which have not been previously heard and considered. Thus, the request for a conference is hereby denied. Upon submittal of new technical information or data of substance, a request for a hearing will be reconsidered.

Sincerely,

A handwritten signature in cursive script, reading 'Lowell P. Braxton'.

Lowell P. Braxton  
Deputy Director

vb

cc: J. Carter  
M. Wright

P:\GROUPS\MINES\WP\CONFER.DEN



State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt  
Governor

Ted Stewart  
Executive Director

James W. Carter  
Division Director

1594 West North Temple, Suite 1210  
Box 145801  
Salt Lake City, Utah 84114-5801  
801-538-5340  
801-359-3940 (Fax)  
801-538-7223 (TDD)

May 2, 1997

Wendell Owen  
Co-Op Mining Company  
P.O. Box 1245  
Huntington, UT 84528

Re: Tank Seam Federal Lease-Determination of Administrative Completeness, Co-Op Mining Company, Bear Canyon Mine, ACT/015/025, Folder #3, Emery County, Utah

Dear Mr. Owen:

The Division has completed a review of your application to permit Federal Lease U-024316 (Tank Seam). We have coordinated with other agencies and solicited their input as well. Your plan is considered to be administratively complete. The Division is currently conducting a technical analysis of your application and will notify you of our findings as soon as the review is completed. There may be technical deficiencies which you will need to correct prior to our being able to issue a permit.

At this time you should publish a Notice of Complete Application for the Lease Addition as required by R645-300-121. A copy of the publication should be sent to the Division as soon as it is available. You should also insure that a copy of the application is on file at the Emery County Courthouse during the comment period.

We look forward to working with you on completing this permitting action. Please call if you have any questions.

Sincerely,

Daron R. Haddock  
Permit Supervisor

cc: P. Grubaugh-Littig, w/o enclosure  
Pete Hess, PFO, w/o enclosure  
O:\015025.BCN\FINAL\ADMCOMPL.TNK

AFFIDAVIT OF PUBLICATION

STATE OF UTAH)

SS.

County of Emery,)

I, Kevin Ashby, on oath, say that I am the Publisher of the Emery County Progress, a weekly newspaper of general circulation, published at Castle Dale, State and County aforesaid, and that a certain notice, a true copy of which is hereto attached, was published in the full issue of such newspaper for 4 (Four) consecutive issues, and that the first publication was on the 13th day of May, 1997 and that the last publication of such notice was in the issue of such newspaper dated the 3rd day of June, 1997.



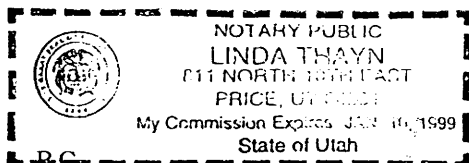
Kevin Ashby - Publisher

Subscribed and sworn to before me this 3rd day of June, 1997.



Notary Public My commission expires January 10, 1999 Residing at Price, Utah

Publication fee, \$83.20



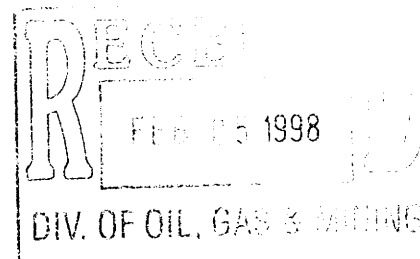
NOTICE

Co-Op Mining Company, P.O. Box 1245, Huntington, Utah, 84528 hereby announces its intent to expand its coal mining activities in the Tank Seam at the Bear Canyon Mine Permit No. ACT/015/025, issued Nov. 1, 1985. The Bear Canyon Mine is located in Bear Canyon approximately 12 road miles west of Huntington, Utah. The proposed permit expansion area, found on the USGS Hiawatha Quadrangle map, is described as follows: T16S, R7E, SLBM, W1/4, Sec. 13 NE1/4, Sec. 14, as shown on Plate 2-1 of the Mining and Reclamation Plan. Coal mining activities in this area will involve mining coal from the Tank Seam, Bear Canyon #2 Mine. Any comments, objections, or requests for informal conferences should be directed to the Utah Division of Oil, Gas & Mining, 1594 West North Temple, Suite 1210, Salt Lake City, Utah 84114-5801. Copies of the permit application are available for public inspection at the office of the Utah Division of Oil, Gas & Mining, Salt Lake City and at the Emery County Recorder's office, Emery County Courthouse, Castle Dale, Utah, 84513.

Published in the Emery County Progress May 13, 20, 27 and June 3, 1997.

Bank One, Arizona,  
International Trade Services  
AZI-1246  
PO Box 29529  
Phoenix AZ 85038 9529  
201 N Central Ave., 11th Floor  
Phoenix AZ 85004

SWIFT BOAZ US 55  
TELEX 673 4869



L/C NO. 1055  
PAGE 2

AND

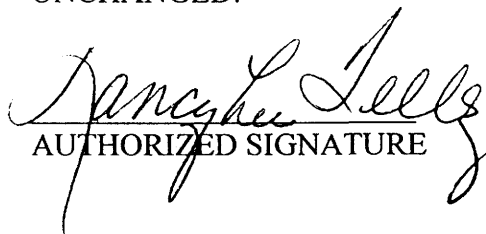
SECOND BENEFICIARY:

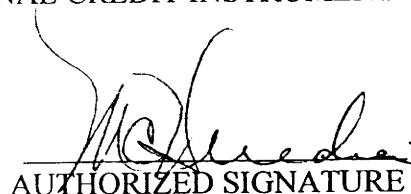
UNITED STATES DEPARTMENT OF THE INTERIOR  
OFFICE OF SURFACE MINING RECLAMATION & ENFORCEMENT  
WESTERN REGIONAL COORDINATING CENTER  
1999 BROADWAY, SUITE 3320  
DENVER, COLORADO 80202-5733

THE STATE OF UTAH, DEPARTMENT OF NATURAL RESOURCES, DIVISION OF OIL,  
GAS AND MINING, 1594 WEST NORTH TEMPLE, SUITE 1210, SALT LAKE CITY,  
UTAH 84114, WILL HOLD THE LETTER OF CREDIT.

THIS CREDIT IS SUBJECT TO THE UNIFORM CUSTOMS AND PRACTICE FOR  
DOCUMENTARY CREDITS (1983 REVISION), INTERNATIONAL CHAMBER OF  
COMMERCE, PUBLICATION NO. 400.

THIS AMENDMENT IS AN INTEGRAL PART OF THE ORIGINAL CREDIT. ALL OTHER  
TERMS AND CONDITIONS OF THE ORIGINAL CREDIT INSTRUMENT REMAIN  
UNCHANGED.

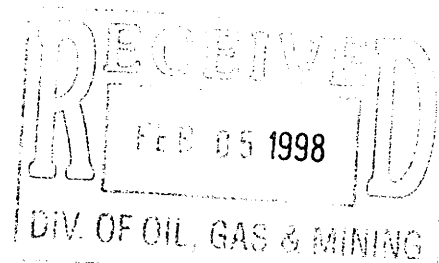
  
AUTHORIZED SIGNATURE

  
AUTHORIZED SIGNATURE



Bank One, Arizona, NA  
International Trade Services  
AZ1-1246  
PO Box 29529  
Phoenix AZ 85038 9529  
201 N Central Ave., 11th Floor  
Phoenix AZ 85004

SWIFT BOAZ US 55  
TELEX 673 4869



AMENDMENT NUMBER: 5

IRREVOCABLE STANDBY LETTER OF CREDIT NO. 1055

TRANSACTION DATE: JANUARY 4, 1998

BENEFICIARY:  
STATE OF UTAH  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING  
3 TRIAD CENTER, SUITE 350  
355 WEST NORTH TEMPLE  
SALT LAKE CITY, UT 84180-1203

GENTLEMEN:

AT THE REQUEST OF:  
BANK ONE, UTAH, NA  
COMMERCIAL LOAN CENTER  
80 WEST BROADWAY, SUITE 330  
SALT LAKE CITY, UTAH 84101  
FORMERLY CAPITAL CITY BANK

AND C. W. MINING COMPANY, AKA CO-OP MINING COMPANY, 53 WEST ANGELO  
AVENUE, SALT LAKE CITY, UT 84115

WE AMEND LETTER OF CREDIT NUMBER 1055 AS FOLLOWS:

FIRST BENEFICIARY:  
STATE OF UTAH  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING  
1594 WEST NORTH TEMPLE, SUITE 1210  
SALT LAKE CITY, UTAH 84114